



# Ohio Economic Trends Review

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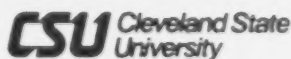
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## Statement of Editorial Goals

*Ohio Economic Trends Review* publishes articles about current public finance and economic development issues of interest to state and local government policymakers and administrators, scholars, students, and individuals who monitor and state's economic and financial condition for the private sector.

*Ohio Economic Trends Review* is produced by the Fiscal Futures Service of the Cleveland State University College of Urban Affairs and is edited by the Ohio Public Finance Roundtable and Board of Editors. Views expressed in articles are those of the authors and do not necessarily reflect official positions of the Fiscal Futures Service.

Funds for *Ohio Economic Trends Review* are provided by Ohio's Urban University Program, which focuses the talents and resources of the state's urban universities on the revitalization efforts of its urban communities. The Ohio General Assembly established the program in 1979 through the Ohio Board of Regents.

The Urban Center at Cleveland State University, of which the Fiscal Futures Service is a part, was created as a model for university and community linkage efforts. The seven other Ohio urban universities participating in the Urban University Program include the University of Akron, the University of Cincinnati, Kent State University, The Ohio State University, the University of Toledo, Wright State University, and Youngstown State University.

## Invitation to Authors

*Ohio Economic Trends Review* welcomes articles advancing the understanding of the economic and financial infrastructure of the state and its political subdivisions.

Articles are reviewed by members of the Ohio Public Finance Roundtable and Board of Editors. No particular approach or research method is favored and manuscripts are invited from all disciplines. Reviewers evaluate manuscripts in terms of the value of the information for the readership, the contribution it makes to advancing knowledge about public finance and economic development, and its clarity and quality.

To submit manuscripts and obtain detailed writer's guidelines, contact: Richard G. Sheridan, Editor, *Ohio Economic Trends Review*, The Urban Center, Cleveland State University, Cleveland, Ohio 44115.

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## Feedback

"The best on Ohio that I've seen."

"The articles are written for noneconomists as well as economists."

"It looks professional, with good brief articles we can use."

Those are among the comments *Ohio Economic Trends Review* received to its premier issue, published last year. Readers appreciated efforts to chart Ohio's economy in detail by region, forecast leading economic indicators for the state's metropolitan areas and identify changes in the state's economy.

With this winter issue, the review is beginning regular publication. If you have not subscribed to date, a subscription card is attached to this issue for your convenience.





# Ohio Economic Trends Review

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Winter 1986  
Volume 1, Number 2

### Long-run Growth and Cyclical Behavior of Ohio's Economy/6

Analysis of the performance of the state's economy since World War II shows that Ohio has separated from national economic trends and suffers more in recessions and benefits less and later in recoveries than the nation as a whole. The explanation rests largely with the importance of manufacturing to the state. More activity by high-technology and service industries could bring the Ohio economy into rhythm with the national economy.

### Transformation of the Akron Economy/14

The Rubber City is no longer just a working class town. The decline in the number of manufacturing jobs linked to the rubber industry has been followed by growth in nonmanufacturing, service-oriented jobs ranging from corporate administration to research and development and restaurants. The rubber industry also developed a network of industries poised to participate in the growth of polymer production. The changes bring Akron closer in tune with the national economy. This is the first in a series of profiles of Ohio's major metropolitan areas in *Ohio Economic Trends Review*.

### Ohio Regional Forecasts for 1986/22

In Ohio in 1986 there actually will be eight separate regional economic outlooks for the coming year. Economists from around the state, mostly from major universities, have prepared local forecasts for seven of those metropolitan areas.

### Econometric Model Generates 1986 Leading Indicator Forecasts for Ohio SMSAs/27

What's ahead in 1986? The econometric forecasting model unveiled in the premier issue of *Ohio Economic Trends Review* has been used to produce forecasts of 1986 leading indicators in eight Ohio Standard Metropolitan Statistical Areas. New data has been added to refine the forecasts. The outlook is optimistic for employment and payrolls, but retail sales may slip by year's end.

### Viewpoint: Interstate Tax Competition and Economic Development/37

Interstate competition to offer incentives for economic development is putting pressure on safety net programs at the state level and making states reluctant to resolve tax equity issues. Viewpoint is a guest column.



# Long-Run Growth and Cyclical Behavior of Ohio's Economy

By Robert Premus\*

## I. Introduction

Fiscal officers and budget analysts, at the state and local government levels, must contemplate changes in Ohio's economy to project the revenue yield from their respective tax structures. Since the national economy is a primary determinant of economic conditions in state and local economies, an understanding of how Ohio's economy performs relative to the national economy is of paramount importance. Also of importance is the fiscal analyst's ability to perceive changes in national economic conditions.

Economic forecasters in industry and policy analysts in government, who are concerned about investment opportunities in Ohio, also need to be cognizant of Ohio's long-run trends and cyclical performance. Ohio's industrial mix, its overall climate for entrepreneurship and innovation, and the quality of human capital are major determinants of Ohio's long-run and cyclical performance.

This paper examines Ohio's overall growth performance from 1952 to the present. The sensitivity of Ohio's economy to national recessions and recoveries is discussed. Ohio's economy benefits less than the nation from economic recovery and it is hurt more than the nation by recessions. This finding of the study is true to an even greater extent for the manufacturing sector. In fact, Ohio's manufacturing sector accounts for much of the cyclical variation in Ohio's overall economic performance. The result is a high degree of business uncertainty in Ohio, creating a potentially significant barrier to investment, entrepreneurship, and innovation.

*\*Professor of Economics and Director, Center for Industrial Studies, Wright State University, Dayton, Ohio. The following individuals are to be thanked for providing useful comments on the original draft of this paper: Professor Richard Raymond, Kent State University; Dixie Sommers, Director, Ohio Labor Market Information Services; and Matthew Filipic, Director, Budget and Resource Planning, Ohio Board of Regents. Of course, the author is fully responsible for any errors that may appear in the paper.*

The paper concludes that Ohio needs to diversify into the high-tech and service industries to offset the destabilizing influence of traditional manufacturing. Since Ohio cannot control national business cycles, incentives for economic diversification must come from internal improvements in Ohio's overall climate for entrepreneurship and innovation. A vibrant entrepreneurial community is particularly important to Ohio since the state needs to spawn new industries to offset job losses in the traditional manufacturing sectors. The poor long-run performance of Ohio's economy suggests that the nation's business community perceives investment opportunities in Ohio to be significantly less attractive than in other states and regions. One consequence is that the new high-tech and high-growth service sectors are noticeably underrepresented in Ohio's industrial mix.

The economic indicators used to measure Ohio's overall long-run and cyclical performance are total nonagricultural employment and the unemployment rate. Labor market indicators are used to measure aggregate performance since reliable data on gross state product are not available.

## II. Long-Run Trends

Ohio's economy is not expanding as rapidly as the U.S. economy. According to Table 1, over the 1952-1980 period, Ohio's total nonagricultural employment grew by 46 percent from 3.01 million to 4.37 million. U.S. nonagricultural employment grew by 86 percent over this period from 48.78 million to 90.41 million. The significantly slower long-term secular growth of the Ohio economy can be observed in Figure 1 as the difference in the slopes of the regression lines superimposed on U.S. and Ohio employment data. The slope parameter (0.5) for the Ohio regression line is less than the slope parameter (1.5) for the U.S. regression line. Both regression lines express nonagricultural employment as a function of TIME, indicating that Ohio's long-term employment growth, although large in an



absolute sense, is not keeping pace with national growth.

**1960-1979:** A significant increase in job growth occurred after 1960. In particular, the post-1960 period saw an acceleration over the 1952-1960 period in the growth of total nonagricultural employment in the U.S. and Ohio economies, but relative growth was faster in the U.S. economy. Nonagricultural employment increased at an average annual rate of 3.3 percent nationally and at an average annual rate of 2.2 percent for Ohio. In contrast, over the 1952-60 period, average annual growth rate for the U.S. and Ohio economies was 1.4 percent and 0.6 percent, respectively. On the positive side, Ohio's growth rate increased after 1960 by more than the national growth rate, thus reducing somewhat the rate by which Ohio's nonagricultural employment growth was lagging U.S. non-agricultural employment growth.

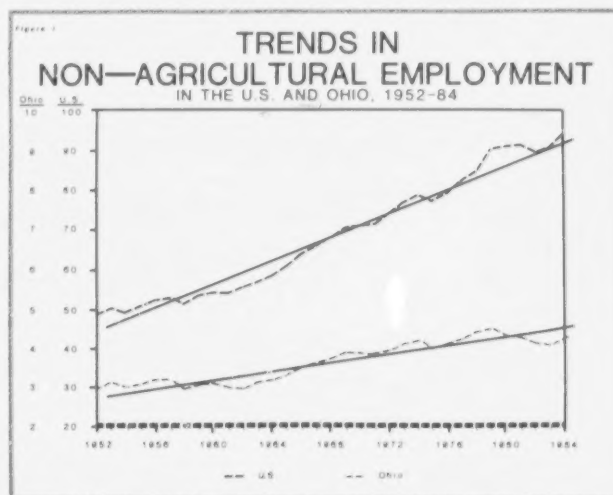
What accounts for the sharp acceleration in nonagricultural employment growth during the post-1960 period? Naturally, employment demand had to be increasing, but the primary factor was an acceleration in the rate of growth of labor supply. The post World War II "baby boom," the largest in U.S. history, turned into a "labor force boom" in the 1960's and 1970's. The rapid increase in the labor supply kept real wages from rising at the rate they would have experienced in the absence of the unusual outward shift in labor supply. The unemployment rate experienced an upward secular trend over the period and inflation began to accelerate. Relatively high unemployment and inflation, by moderating the rate of increase in real wages, lowered the rate of return on labor-saving capital investments. The business community responded by substituting more labor-intensive production techniques for capital-intensive production techniques. Thus, employment demand increased over the period even though the capital formation rate remained steady. Growth in the nation's capital/labor ratio fell sharply as did the rate of increase in labor productivity.<sup>1</sup>

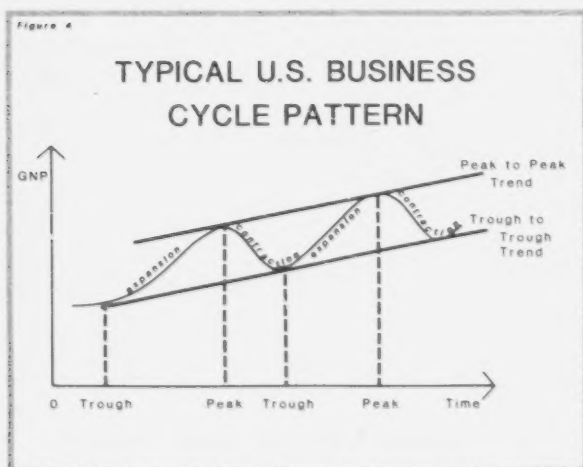
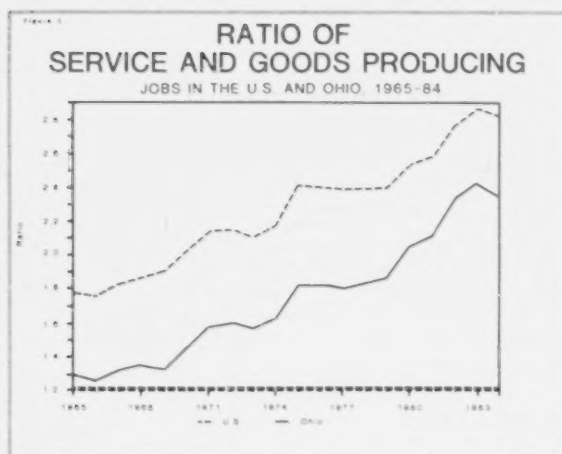
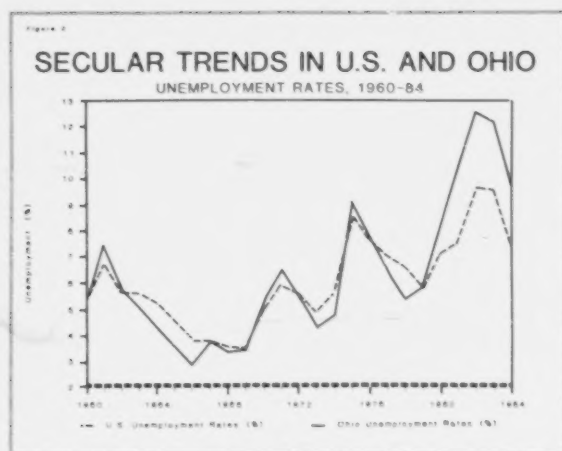
The decline in labor productivity was viewed with alarm by many economists, businessmen and social commentators, but this may be a wrong perspective. An acceleration in the rate of capital formation in the 1960's and 1970's would have significantly reduced growth in labor demand and resulted in intolerably high rates of unemployment. An analysis of labor demographics over the period suggests that slower growth in the capital/labor ratio was a natural market response to an increasing supply of labor to the economy.<sup>2</sup> The result was an accelerated increase in the demand for labor (because of moderation in real wage rate increases) which moderated the secular increase in the

**Table 1**  
**Nonagricultural Employment and**  
**Unemployment in United States and Ohio,**  
**1952-1984**

| Year | Employment<br>(thousands) |       | Unemployment<br>(thousands) |      |
|------|---------------------------|-------|-----------------------------|------|
|      | U.S.                      | Ohio  | U.S.                        | Ohio |
| 1952 | 48,781                    | 3,005 | 30                          |      |
| 1953 | 50,213                    | 3,150 | 29                          |      |
| 1954 | 48,989                    | 3,028 | 56                          |      |
| 1955 | 50,637                    | 3,129 | 44                          |      |
| 1956 | 52,385                    | 3,220 | 41                          |      |
| 1957 | 52,878                    | 3,230 | 43                          |      |
| 1958 | 51,337                    | 3,007 | 68                          |      |
| 1959 | 53,287                    | 3,112 | 54                          |      |
| 1960 | 54,212                    | 3,147 | 55                          | 53   |
| 1961 | 54,023                    | 3,044 | 67                          | 74   |
| 1962 | 55,578                    | 3,099 | 56                          | 57   |
| 1963 | 56,624                    | 3,145 | 56                          | 51   |
| 1964 | 58,313                    | 3,216 | 52                          | 43   |
| 1965 | 60,799                    | 3,364 | 45                          | 36   |
| 1966 | 63,931                    | 3,537 | 38                          | 29   |
| 1967 | 65,840                    | 3,620 | 38                          | 38   |
| 1968 | 67,942                    | 3,751 | 36                          | 34   |
| 1969 | 70,432                    | 3,887 | 35                          | 35   |
| 1970 | 70,921                    | 3,881 | 50                          | 53   |
| 1971 | 71,216                    | 3,839 | 60                          | 65   |
| 1972 | 73,703                    | 3,938 | 56                          | 55   |
| 1973 | 76,889                    | 4,113 | 49                          | 43   |
| 1974 | 78,419                    | 4,170 | 56                          | 48   |
| 1975 | 77,049                    | 4,009 | 85                          | 91   |
| 1976 | 79,445                    | 4,094 | 77                          | 78   |
| 1977 | 82,129                    | 4,215 | 71                          | 65   |
| 1978 | 84,560                    | 4,380 | 66                          | 54   |
| 1979 | 89,823                    | 4,485 | 58                          | 59   |
| 1980 | 90,406                    | 4,367 | 71                          | 81   |
| 1981 | 91,156                    | 4,318 | 76                          | 104  |
| 1982 | 89,566                    | 4,124 | 97                          | 125  |
| 1983 | 90,196                    | 4,092 | 96                          | 122  |
| 1984 | 94,461                    | 4,248 | 75                          | 96   |

Source: "Employment and Earnings" U.S. Department of Labor, Various issues 1952-1978





unemployment rate.

The percent of young people, women and minorities in the labor force rose sharply in the 1960's and 1970's. Bringing these people into the mainstream of American economic life was a major social accomplishment, often overshadowed in public discussions because of concern over the secular rise in the unemployment rate. These demographic groups are typically the last hired and the first fired when economic conditions change. They also tend to voluntarily enter and leave the labor force more frequently than their older, more experienced counterparts. As a result, the nation and Ohio experienced secular growth in their unemployment rates at a time when job growth was accelerating.<sup>3</sup>

Since the Ohio economy was subjected to the same demographic trends as the nation, it was the failure of Ohio's economy to create employment growth (demand) at the national rate that resulted in a larger upward secular rise in Ohio's unemployment rate. Figure 2 presents the upward secular trends in Ohio's and the nation's unemployment rates.

**Structural Changes:** Labor demand also rose due to an increase in the demand for goods and services. Consumer demand rose because of a larger population and higher family incomes caused by an increasing proportion of the population in the labor market. Growth in demand for products and services increased at about the same rates, but service productivity growth lagged manufacturing productivity growth. Thus, labor demand in the service industries increased relative to labor demand in the goods producing industries.

Table 2 and Figure 3 show jobs in the service producing sectors relative to jobs in the goods producing sectors for Ohio and the U.S. In 1984, Ohio had 2.4 jobs in its service sectors for each job in the goods producing sectors, up from a 1.3:1 ratio in 1965. The ratio for the U.S. was 2.8:1 in 1984 and 1.8:1 in 1965. Apparently, Ohio is slightly more dependent upon its goods producing sectors for jobs and growth than the national economy.

Of interest to Ohioans is the gradual tendency of the state's industrial structure to converge to the nation's industrial structure. This convergence is occurring because job growth in Ohio's service sector lags U.S. service sector job growth by less than Ohio's manufacturing sector lags U.S. manufacturing job growth. The convergence in economic structure should not be interpreted to indicate that Ohio is becoming more structurally diversified. The central problem is that Ohio lacks dynamism in both its service and manufacturing sectors. As discussed in the premier issue of this journal, a major deficiency in Ohio's industrial



structure is an underrepresentation of high growth service and high-tech manufacturing firms.<sup>4</sup>

### III. Short-Run Cyclical Patterns

This section examines patterns of variation in employment and unemployment in the Ohio economy over the seven business cycles that have occurred since 1953. A business cycle is characterized by short-run movements in general economic conditions over three successive phases: contraction, expansion and contraction. Figure 4 presents the general business cycle pattern for illustrative purposes.

The strategy in this section is to measure cyclical contractions in the Ohio and U.S. economies by the percentage decline in nonagriculture employment from peak to trough for each business cycle in the post-war period. Trough to peak percentage changes are also calculated for each expansion phase of the business cycles. The percentage change in employment from peak to peak, and from trough to trough, for each successive business cycle is also calculated and presented. Of importance to Ohioans is the degree to which the Ohio economy responds to national business cycles, the relationship between short-run business cycles and long-term economic growth, and the policy options available to state decision makers.

In general, it was found that the Ohio economy experiences greater cyclical variations than the U.S. economy, and Ohio's cyclical variations show a tendency to increase over time. Moreover, the post-1970 Ohio economy may have entered into a new phase of economic development characterized by even greater cyclical variability, and a widening of the growth gap between the Ohio economy and the national economy. In fact the analysis of this section suggests that the wider cyclical swings in Ohio's economy, by having a dampening effect on business investment, actually contribute to Ohio's lackluster long-term performance.

**Employment Cycles:** Seven cycle expansions and contractions in nonagricultural employment are analyzed in this section. The cycle turning point dates used in the analysis are presented in Table 3. They were obtained from the U.S. Reference Cycle, published by the National Bureau of Economic Research in various issues of the *Business Conditions Digest*.

Table 4 summarizes the data on trough to peak (expansions) changes in nonagricultural employment in the Ohio economy over the 1954-80 period. During the seven expansions, the mean trough to peak percentage change was less for Ohio (8.0 percent) than for the U.S. economy (10.8 percent). In comparison to Ohio, after 1953, the

**Table 2**  
**Trends in Goods Producing and Service Producing Sector Jobs, 1965-84**

| Year | U.S.                |                       |             | Ohio                |                       |             |
|------|---------------------|-----------------------|-------------|---------------------|-----------------------|-------------|
|      | Goods Producing (1) | Service Producing (2) | Ratio (2/1) | Goods Producing (3) | Service Producing (4) | Ratio (4/1) |
| 1965 | 21880               | 38936                 | 1.8         | 1462                | 1894                  | 1.3         |
| 1966 | 23116               | 40839                 | 1.8         | 1481                | 1875                  | 1.3         |
| 1967 | 23268               | 42589                 | 1.8         | 1524                | 2009                  | 1.3         |
| 1968 | 23672               | 44244                 | 1.9         | 1597                | 2157                  | 1.4         |
| 1969 | 24221               | 46063                 | 1.9         | 1668                | 2223                  | 1.3         |
| 1970 | 23352               | 47242                 | 2.0         | 1574                | 2307                  | 1.5         |
| 1971 | 22542               | 48103                 | 2.1         | 1489                | 2351                  | 1.6         |
| 1972 | 23061               | 49704                 | 2.2         | 1512                | 2426                  | 1.6         |
| 1973 | 24720               | 52113                 | 2.1         | 1602                | 2511                  | 1.6         |
| 1974 | 24697               | 53715                 | 2.2         | 1589                | 2581                  | 1.6         |
| 1975 | 22603               | 54448                 | 2.4         | 1422                | 2594                  | 1.8         |
| 1976 | 23332               | 56111                 | 2.4         | 1450                | 2645                  | 1.8         |
| 1977 | 24229               | 57912                 | 2.4         | 1507                | 2723                  | 1.8         |
| 1978 | 25585               | 61113                 | 2.4         | 1554                | 2841                  | 1.8         |
| 1979 | 26461               | 63363                 | 2.4         | 1565                | 2920                  | 1.9         |
| 1980 | 25658               | 64748                 | 2.5         | 1432                | 2936                  | 2.1         |
| 1981 | 25497               | 65659                 | 2.6         | 1386                | 2931                  | 2.1         |
| 1982 | 23813               | 65753                 | 2.8         | 1235                | 2890                  | 2.3         |
| 1983 | 23334               | 66862                 | 2.9         | 1197                | 2895                  | 2.4         |
| 1984 | 24730               | 69731                 | 2.8         | 1268                | 2980                  | 2.4         |

**Table 3**  
**U.S. Business Cycle Dates for Peaks and Troughs Since 1945**

| Peak |      | Troughs |      |
|------|------|---------|------|
| Feb. | 1945 | Oct.    | 1945 |
| Nov. | 1948 | Oct.    | 1949 |
| Jul. | 1953 | May     | 1954 |
| Aug. | 1957 | Apr.    | 1958 |
| Apr. | 1960 | Feb.    | 1961 |
| Dec. | 1969 | Nov.    | 1970 |
| Nov. | 1973 | Mar.    | 1975 |
| Jan. | 1980 | Jul.    | 1980 |
| Jul. | 1981 | Nov.    | 1982 |

Source: U.S. Reference Cycle, "Business Conditions Digest", 1977 and 1984.

expansion phases of the U.S. Reference Cycles generated significantly higher percentage growth in employment for the U.S. economy. On the down side of business cycles, Ohio's relative economic performance was even worse. The mean percentage peak to trough change in nonagricultural employment during the seven cyclical contractions for Ohio (3.5 percent) was substantially greater than for the U.S. economy (1.3 percent) (Table 5). Thus, in general, it would appear that the Ohio economy suffers more than the national economy during recessions and it benefits less than the national economy during expansions.

Peak to peak and trough to trough changes in



**Table 4**  
**Change in U.S. and Ohio Nonagricultural**  
**Employment During the Expansion Phase**  
**of the U.S. Reference Cycle, 1954-84**

| Trough            | Peak   | Increase (%) |      |
|-------------------|--------|--------------|------|
|                   |        | U.S.         | Ohio |
| 1954              | - 1957 | 7.9          | 6.7  |
| 1958              | - 1960 | 5.6          | 4.7  |
| 1961              | - 1969 | 30.4         | 27.7 |
| 1970              | - 1973 | 8.4          | 6.0  |
| 1975              | - 1980 | 17.3         | 8.7  |
| 1980              | - 1981 | 0.8          | -1.1 |
| 1982              | - 1984 | 5.5          | 3.0  |
| Mean of increases |        | 10.8         | 8.0  |

**Table 5**  
**Change in U.S. and Ohio Nonagricultural**  
**Employment During the Contraction Phase**  
**of Business Cycle, 1953-82**

| Peak              | Trough | Decrease (%) |      |
|-------------------|--------|--------------|------|
|                   |        | U.S.         | Ohio |
| 1953              | - 1954 | -2.4         | -3.9 |
| 1957              | - 1958 | -2.9         | -6.9 |
| 1960              | - 1961 | -0.3         | -3.3 |
| 1969              | - 1970 | 0.7          | -0.2 |
| 1973              | - 1975 | 0.2          | -2.4 |
| 1981              | - 1982 | -1.7         | -4.5 |
| Mean of decreases |        | -1.3         | -3.5 |

**Table 6**  
**Peak to Peak and Trough to Trough Percent**  
**Change in the U.S. and Ohio Non-**  
**agricultural Employment, 1953-1984**

| Peak to Peak | U.S.  |      | Trough to Trough | U.S. |      |
|--------------|-------|------|------------------|------|------|
|              | U.S.  | Ohio |                  | U.S. | Ohio |
| 1953-1957    | 5.3%  | 2.5% | 1954-1958        | 4.8% | 0.7% |
| 1957-1960    | 2.5   | -2.6 | 1958-1961        | 5.2  | 1.2  |
| 1960-1969    | 30.0  | 23.5 | 1961-1970        | 31.3 | 27.5 |
| 1969-1973    | 9.2   | 5.8  | 1970-1975        | 8.6  | 3.5  |
| 1973-1980    | 17.6  | 6.2  | 1975-1980        | 17.3 | 8.7  |
| 1980-1981    | 0.8   | -1.1 | 1980-1982        | -1.0 | -5.6 |
| Mean         | 10.8% | 5.7% |                  | 11%  | 6%   |

<sup>1</sup>Calculated from Table 1 using Reference cycle turning points in Table 5. Average annual employment data are used in the calculation for the year in which business cycle peaks and troughs are dated.

nonagricultural employment can be used to indicate long-run growth trends and trends in the degree of cyclical variability of the economy. Table 6, which displays the mean value of peak to peak percentage changes in nonagricultural employment for the Ohio and the U.S. economies, suggests that the long-term growth potential of Ohio's economy lags the U.S. economy. The mean values for peak to peak percentage changes in nonagricultural employment for the Ohio and the U.S. economies are 5.7 percent and 10.8 percent, respectively. Mean trough to trough percentage increases, also presented in Table 6, were, on average, greater for the U.S. economy than for the Ohio economy. In fact, on the average, peak to peak and trough to trough percentage growth for the U.S. economy were the same. This suggests that the magnitude of contractions and expansions has not widened over time for the U.S. economy. In contrast, peak to peak growth in Ohio was slightly less than trough to trough growth in Ohio. Thus, it would appear that Ohio's cyclical employment variations have been increasing over time.

**Unemployment:** Changes in employment growth (or labor demand) should be reflected in cyclical changes in the unemployment rate, since labor supply is not likely to be significantly affected by product-oriented changes in labor demand. This is precisely the relationship between employment changes and unemployment that exists for the U.S. and Ohio economies, although some significant differences exist.

Both the Ohio and the U.S. economies display similar cyclical variations in unemployment. However, Ohio labor markets are more sensitive to changes in national economic conditions (See Table 1 and Figure 2). From a high of 7.4 percent in 1961, Ohio's unemployment rate fell steadily to a low of 2.9 percent in 1966, a drop of 60.9 percent. Over the same period, the U.S. unemployment rate fell 43.3 percent from 6.7 percent to 3.8 percent. But by 1971, Ohio's unemployment rate (6.7 percent) was again above the U.S. unemployment rate of 6.6 percent. In 1974, Ohio's unemployment rate (4.8 percent) again plunged below the U.S. unemployment rate (5.6 percent). The recession which followed and bottomed out in 1975 resulted in Ohio's unemployment rate soaring to 9.1 percent, well above the national rate of 8.5 percent. By 1978, Ohio's unemployment rate (5.4 percent) again fell below the U.S. unemployment rate (6.0 percent). The slowdown in economic growth after 1979 and the recession in 1980 characteristically found Ohio's 1980 unemployment rate (8.1 percent) rising above the national unemployment rate (7.1 percent) by 1980. Thus, throughout the 1960's and 1970's, national business cycles were considerably more



destabilizing to Ohio's labor markets.

Greater uncertainty in Ohio's labor markets can add to the cost of doing business in Ohio. First, Ohio firms must offer wage premiums to prevent skilled labor from migrating to regions where labor market opportunities are more secure. Second, changes in the unemployment rate trigger increases in welfare-related programs. Higher state transfer payments lead to a reduction in other expenditures or high taxes. Because these negative feed-back effects detract from the attractiveness of the state's overall investment climate, the short-run cyclical behavior and long-run performance of Ohio's economy are not independent. The likely effect of increased business uncertainty is a less dynamic economy and a lower rate of new investment.

#### IV. Cycle Turning Points

An inspection of Table 1 and Figure 1 (presented earlier) will reveal that the turning points of the expansion and contraction phases of Ohio and U.S. total nonagricultural employment cycles are roughly coincident, when using annual data. There are two important exceptions. First, the recovery phase of the 1975 recession found Ohio nonagricultural employment growth lagging recovery in U.S. nonagricultural employment growth by a full year. The percentage growth in Ohio nonagricultural employment from 1975 to 1976 was 2.1 percent as compared to 3.1 percent for the U.S. economy. However, after the delay, the Ohio economy responded with resiliency. Nonagricultural employment growth from 1976 to 1978 for Ohio (7.0 percent) was greater than it was for the U.S. economy (6.4 percent) by a margin greater than might be expected from historical trends. Also, Ohio employment continued to expand through 1979, increasing by about 2.4 percent.

**Table 7**  
**Percent Change in U.S. and Ohio**  
**Manufacturing Jobs During the Business**  
**Cycle Expansions, 1954-84**

| Trough            | Peak | U.S. | Ohio |
|-------------------|------|------|------|
| 1954              | 1957 | 5.0  | 4.1  |
| 1958              | 1960 | 5.8  | 8.3  |
| 1961              | 1969 | 23.7 | 24.4 |
| 1970              | 1973 | 2.4  | 1.1  |
| 1975              | 1980 | 10.7 | -0.3 |
| 1980              | 1981 | -0.6 | -2.5 |
| 1982              | 1984 | 7.9  | 8.9  |
| Mean of increases |      | 7.8  | 6.3  |

Second, in the 1980's Ohio's initial response to national economic recovery appears to be even more out of sync with the national business cycle patterns. Two full years after the 1982 recession, Ohio has yet to regain the 1981 level of average annual employment. In stark contrast, the U.S. economy generated new jobs at a rapid pace. U.S. employment in 1984 was up 3.6 percent over its previous 1981 all time peak of 91.2 million.

The slippage in the ability of Ohio's economy to generate new jobs during national economic recovery periods has resulted in Ohio's 1984 unemployment rate remaining well above the national rate. By historical standards, at this stage of an economic expansion, Ohio's unemployment rate should be equal or less than the national rate.

What is unsettling about the slippage in Ohio's ability to create jobs during periods of economic recovery is that it may portend a worsening of Ohio's already dismal long-run economic performance. The one bright spot is the sharp increase in Ohio's manufacturing jobs from 1982 to 1984, after years of decline (See Table 7).

#### V. What Are The Causal Factors?

Underlying the long-term performance and cyclical sensitivity of Ohio's economy is the performance of its manufacturing sector, which accounts for 25 percent of the jobs in Ohio. Manufacturing jobs in the U.S. are growing more slowly than growth in U.S. service jobs, but Ohio manufacturing sectors are generating new jobs at an even slower pace than nationally. Moreover, the ups and downs in Ohio manufacturing employment over business cycles are much more pronounced than they are nationally.

**Table 8**  
**Percent Change in U.S. and Ohio**  
**Manufacturing Jobs During the Business**  
**Cycle Contractions, 1953-84**

| Peak              | Trough | U.S. | Ohio  |
|-------------------|--------|------|-------|
| 1953              | - 1954 | -7.2 | -9.5  |
| 1957              | - 1958 | -7.8 | -13.3 |
| 1960              | - 1961 | -2.9 | -6.2  |
| 1969              | - 1970 | -3.8 | -4.2  |
| 1973              | - 1975 | -8.5 | -11.5 |
| 1981              | - 1982 | -6.5 | -10.5 |
| Mean of decreases |        | -6.1 | -9.2  |



Table 7 indicates that manufacturing jobs in Ohio increased, on average, 6.3 percent over seven recovery periods since 1953. U.S. manufacturing jobs increased an average of 7.8 percent over these expansion periods. On the downturns, Ohio's manufacturing jobs shrunk, on average, 9.2 percent in contrast to 6.1 percent for the nation (Table 8). Thus, it would appear that Ohio's manufacturing sector accounts for much of the deviation in Ohio's cyclical performance from national trends. The failure of Ohio's manufacturing jobs to keep pace with manufacturing job growth nationally also accounts for much of Ohio's lagging overall economic performance.

Factors that determine the short-run variability of a regional economy generally can be found in the structure of that region's economy and in its external trade relations with other regions. An economy with a disproportionate mix of cyclically sensitive industries will, in general, exhibit greater aggregate cyclical performance. The cyclical sensitivity of Ohio's manufacturing sector indicates that Ohio's mix of manufacturing firms is not significantly diversified. One stabilizing factor in the U.S. manufacturing sector has been the strong emergence of high-technology industries over the 1960's and 1970's. Ohio's economy over this period generated relatively few new high-tech jobs, and in comparison to other large manufacturing states, Ohio's share of the nation's high-tech jobs in manufacturing has been declining (Table 9).

The absence of a diversified mix of emerging innovation companies, generating new products and processes from which new industries emerge and old industries restructure, may also account for Ohio's lagging long-run performance in economic growth. The U.S. economy has been divesting of high-volume, low-cost manufacturing jobs and shifting to services and to high-value added manufacturing. As a result, high-tech value added in manufacturing output rose from 27 percent in 1960 to 38 percent in 1980. High-tech jobs in the U.S. manufacturing sector increased from 27 to 33 percent.<sup>5</sup> The U.S. economy is not deindustrializing; value added in manufacturing as a percent of gross national product has remained around 25 percent for decades. The U.S. economy is reindustrializing and in the process its service and manufacturing sectors are becoming more dependent on advances in technology for new products and processes to remain competitive. One consequence has been strong growth in U.S. exports of service and high-technology products during the 1970 period. Another consequence has been a gradual increase in U.S. manufacturing jobs and the rejuvenation of many of America's basic industries.

In comparison, Ohio's absence of a comparable mix of high-tech service and technologically

**Table 9**  
**Relative Distribution of U.S. High-Tech Jobs by Selected States: 1975 and 1979**

| Selected States | Percent of U.S. High-Tech Employment 1979 | Percent of U.S. High-Tech Employment 1975 | Percent Change 1975-1979 |
|-----------------|-------------------------------------------|-------------------------------------------|--------------------------|
| Arizona         | 1.59%                                     | 1.28                                      | 24.2                     |
| California      | 15.85                                     | 14.40                                     | 10.1                     |
| Colorado        | 1.46                                      | 1.30                                      | 12.3                     |
| Texas           | 3.96                                      | 3.28                                      | 20.7                     |
| Utah            | 0.49                                      | 0.37                                      | 32.4                     |
| Washington      | 0.53                                      | 0.35                                      | 51.4                     |
| Nevada          | 0.10                                      | 0.06                                      | 66.6                     |
| Connecticut     | 2.60                                      | 2.70                                      | -3.7                     |
| Maine           | 0.29                                      | 0.21                                      | 38.1                     |
| Massachusetts   | 6.13                                      | 5.80                                      | 5.7                      |
| New Hampshire   | 1.00                                      | 0.70                                      | 42.9                     |
| Rhode Island    | 0.53                                      | 0.55                                      | 3.6                      |
| Vermont         | 0.44                                      | 0.38                                      | 15.8                     |
| Illinois        | 6.69                                      | 7.89                                      | -15.2                    |
| Michigan        | 2.54                                      | 2.51                                      | 1.2                      |
| New Jersey      | 5.02                                      | 5.75                                      | -12.4                    |
| New York        | 10.34                                     | 11.74                                     | -11.9                    |
| Ohio            | 4.46                                      | 5.11                                      | -12.7                    |
| Pennsylvania    | 5.79                                      | 6.75                                      | -14.2                    |
| Minnesota       | 2.89                                      | 2.60                                      | 11.2                     |
| Florida         | 2.71                                      | 11.10                                     | 29.0                     |
| Georgia         | 0.78                                      | 0.65                                      | 27.7                     |
| Maryland        | 1.03                                      | 1.00                                      | 3.0                      |
| Virginia        | 1.11                                      | 1.23                                      | -9.8                     |
| North Carolina  | 2.31                                      | 1.89                                      | 22.2                     |

SOURCE: Calculated from Eugene J. Doody and Helen B. Munzer, "High Technology Employment in Massachusetts and Selected States," a report prepared for the Massachusetts Division of Employment Security, Job Search, March 1981.

advanced manufacturing firms may explain why Ohio lags the nation in service and manufacturing job generation. Because Ohio's high-tech sectors have failed to keep pace with national trends, the ability of Ohio to compete for the growth in high-skilled, high-wage jobs is on the wane. This largely explains why Ohio's rank in per capita income among the states has slipped from tenth in 1950 to twenty-third in 1981. It also explains why Ohio's manufacturing sectors have failed to keep pace with the U.S. growth. In the 1970's, U.S. manufacturing exports were rising in the high-tech sectors. While U.S. manufacturing employment increased by 5 million between 1970 and 1980, Ohio's manufacturing employment actually declined.

## VI. Trends and Cycles in the 1980's

The 1980's began with the United States and Ohio economies slumping to their worst recession since the 1930's. Unemployment rates soared well above 10 percent. The labor market recovery since December, 1982 has been brisk for the nation. The U.S. economy generated more than 6 million new jobs from 1983 to December, 1984. The nation's



unemployment rate fell from 9.5 percent to 7.1 percent over this period, a drop of 25 percent. As a result, the U.S. economy had more jobs in 1985 than it had in 1980. In contrast, Ohio's economy failed to generate enough jobs after 1982 to offset the loss of jobs during the 1982 recession. As a result, there were fewer manufacturing and service jobs in Ohio in 1985 than existed in 1980. This dismal performance in both the goods and service producing sectors is quite disturbing, since it indicates that Ohio's already poor long-term economic performance may have taken a turn for the worse.

The national recovery in the face of persistently high real interest rates, associated with tight monetary policy and high federal deficits, may explain Ohio's post-1980 lack-luster performance. By keeping the value of the dollar high, high real interest rates hinder U.S. exports of manufactured and service products. The U.S. Department of Commerce lists Ohio as the sixth largest exporting state. Because of its strategic role in U.S. exports, the high dollar may have reduced the competitiveness of Ohio's exports industries by as much as 30 percent. Also, because high real interest rates reflect the high cost of capital to firms, they make new investments necessary for job creation less attractive than they otherwise would be.

## VII. Summary And Conclusions

Apparently, a significant change in the cyclical behavior of the Ohio economy in relation to the cyclical patterns of the national economy has occurred after 1953. Before 1953, changes in nonagricultural employment were greater for Ohio than for the U.S. economy. After 1953, however, U.S. employment growth during the expansion phase of a recovery exceeded Ohio's growth, but recessionary employment declines were greater for Ohio than for the U.S. economy. After 1975, another significant change emerged in Ohio's relative business cycle pattern. Ohio's economy has slipped in its ability to keep pace or exceed the nation in generating new jobs during economic recoveries, and it suffers greater losses during national recessions. In general, Ohio's economy is not only growing at a lower than national rate, it is also experiencing greater cyclical variations in nonagricultural employment. On the positive side, the recent resiliency of the Ohio manufacturing sector is some indication that Ohio may be experiencing a relative improvement in its economic performance.

What can Ohio do to improve its long-run competitiveness and reduce its cyclical instability? Economic diversification is the answer in both cases. For Ohio, this means providing a more attractive

environment for high-tech research, entrepreneurial expansion, and capital formation. Ohio needs to think strategically about its long-run role in the American and world economies. Public planners cannot wave a "magic wand" nor can they develop crash programs to accomplish economic diversification. However, government can remove barriers to entrepreneurship and innovation.

A more dynamic economy is necessary to speed up the long-run transition of Ohio's economy to a more diversified economic base. Ohio's labor markets, university programs and policies, financial markets, and government tax, expenditure, and regulatory policies must be studied in depth to uncover potential barriers to economic expansion. The strategic question to ask is this: "Is Ohio providing the necessary institutional environment, human capital investments, research facilities, and entrepreneurial incentives to fully participate in the mainstream of the nation's emerging high-tech, service economy?" The examination of Ohio's growth record in this paper suggests that much must be done before Ohioans can reap the full benefits of national economic growth.

## References

<sup>1</sup>The Joint Economic Committee attributes the reduction in U.S. productivity growth primarily to the decline in the growth of the nation's capital/labor ratio, but, since the productivity slowdown was even more pronounced in Western Europe and Japan, the committee did not view this decline as necessarily symptomatic of a loss in U.S. competitiveness. See U.S. Congress, Joint Economic Committee, *The 1981 Midyear Report: Productivity Report of the Joint Economic Committee* (Washington, D.C.: GPO, 1981, p.p. 1-25.)

<sup>2</sup>Robert B. Reich, "The Next Frontier," New York: Times Books, 1983.

<sup>3</sup>Ohio virtually mirrors the national patterns of labor forces composition by age and sex, and by labor force participation rates, according to Dixie Sommers, Director, Division of Labor Market Information, Ohio Bureau of Employment Services. See "The Ohio Labor Force: The Recession and Recovery"; comments before the Census Table, July 11, 1985, Cleveland, Ohio.

<sup>4</sup>Richard Sheridan, Michael Sobul, Mark Hoffman, and Wilbur Thompson, "Ohio's Changing Economy," "The Ohio Trends Review," Premier Issue, Vol. 1, No. 1, Summer 1985, pp. 25-30.

<sup>5</sup>See Table 4-8, p. 66 in Robert Z. Lawrence, "Can America Compete?" The Brookings Institution, 1984.



# Transformation of the Akron Economy\*

By Jack Dustin  
James Shanahan  
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In 1980, Akron, a two-county Standard Metropolitan Statistical Area (SMSA) ranked 59th among all SMSAs in population size with 660,328 persons. Akron is similar in size to Jacksonville, Florida; Tulsa, Oklahoma and Syracuse, New York, and larger than Charleston, South Carolina; Knoxville, Tennessee and Tucson, Arizona. Most important, though, is that Akron is an integral part of a metroplex: the Cleveland/Akron/Canton/Lorain-Elyria/Youngstown region (see Map 1). The downtowns of Cleveland and Akron are separated by only 35 miles, while Akron and Canton are separated by 22 miles. Population, in the Northeast Ohio region overall, as in the Akron SMSA, is still declining; the Akron SMSA lost 3 percent of its population between 1970 and 1980. In 1980, the combined population of Northeast Ohio was 3,440,106.

Akron, Ohio is often cited as the quintessential "company" town populated primarily by working-class families who frequent bingo parlors, bowling alleys, and the neighborhood bars when not working the swing shift at the local rubber mill or keeping up with domestic chores.

The facts, however, describe a different kind of place. Over the years, manufacturing employment in Akron declined from 46 percent of total employment in 1964 to 28 percent in 1983. Even though rubber tire production, which accounted for much of the manufacturing employment, left the area, the big companies that once produced the tires stayed. As these rubber companies diversified through the

years, expanded their facilities nationwide, and grew into multinational corporations, they all made major investments in Akron for conducting central administration, research, and product development. Other firms in the region—many growing ones and even some declining ones—are concerned with sophisticated products. Consequently, Akron's economic future should follow two paths: one, as a place to carry out corporate headquarter functions; and second, as a place for small and medium size manufacturers that form and prosper from innovation activities. During the 1970's such certainty about Akron's economic future was not always evident. In fact, the city and its region went through many years of economic self-doubt and a general perception of living through crisis conditions.

The discussion below describes transformations and the crises affecting the regional economy. Out of the forces of change has come a new sense of economic purpose which has a potential for renewing the Akron economy. In some ways, Akron is literally building a bridge in this transitional period to a new economic future.

## An Economic Infrastructure that Endures

In the period from 1870 to 1920, the technologically linked industries of steel, automobiles, and rubber emerged as powerful forces in the nation's economy that brought significant changes in places such as Akron. These industries raised Northeast Ohio to a national and world manufacturing center.

By 1920, Akron-based rubber companies successfully captured most of the market for automobile tires and converted the once small city into the "Rubber Capital of the World". Along with steelmaking companies located in neighboring cities, the large-scale tire/rubber production plants that clustered in Akron created important economies for their operations and for the region.

But the driving force behind the growth in rubber production came from the automobile industry in Michigan, not more than 150 miles away. The presence of these three national industries

*\*Portions of this article are drawn from:*

Dustin, Jack; Shanahan, James; "Polymer Technology, Innovation and Economic Development" (Akron, Ohio: City of Akron) November 1985;

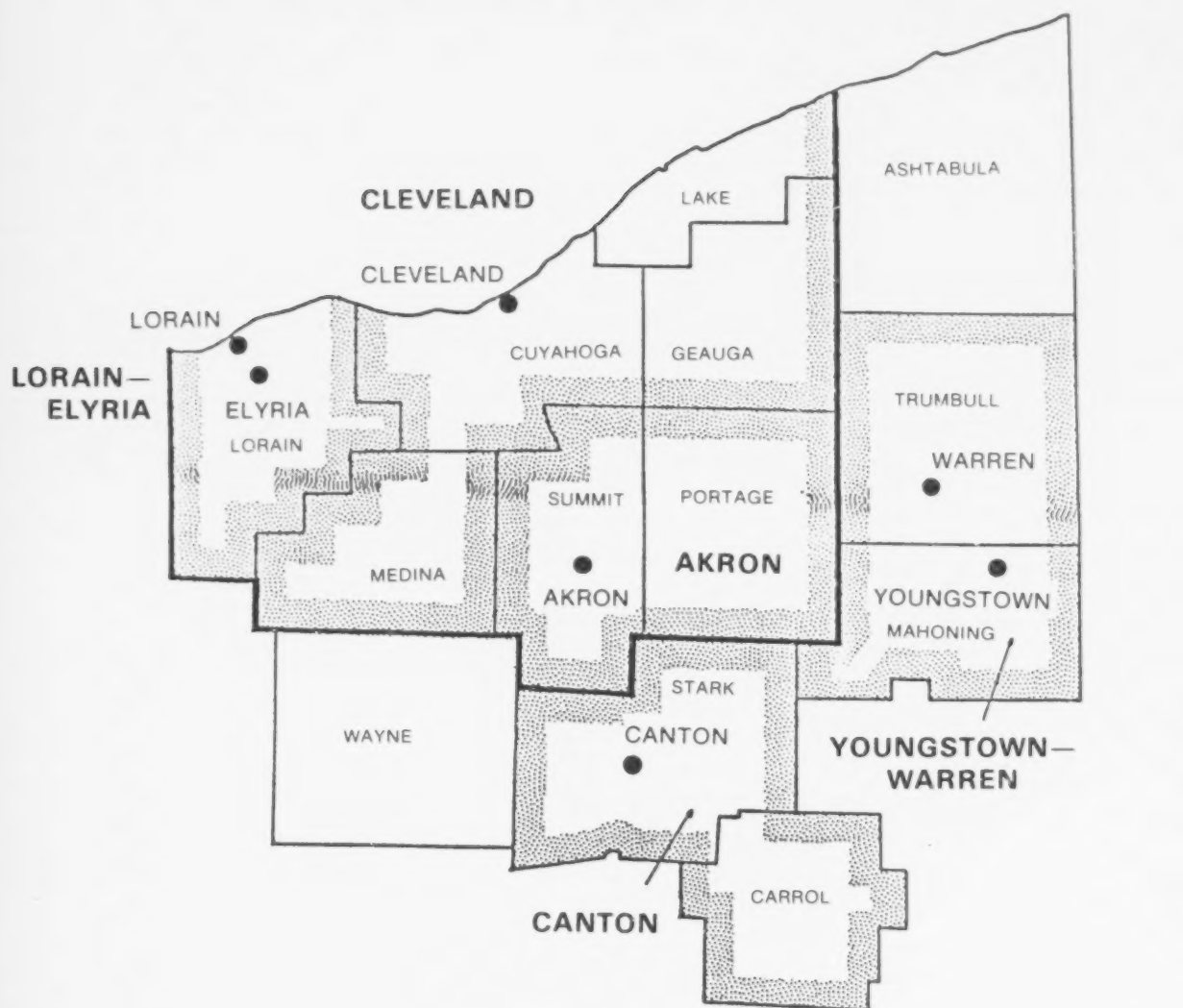
Shanahan, James and Weddle, Michael; "Transformation of the Akron Economy" (Akron, Ohio: Center for Urban Studies, The University of Akron) January 1985.

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## MAP 1

## AKRON: AN INTEGRAL PART OF NORTHEAST OHIO



## Legend

— Standard Consolidated Statistical Area (SCSA)

Standard Metropolitan Statistical Area (SMSA)

Source: U.S. Department of Commerce, Bureau of the Census

Prepared by the Center for Urban Studies, The University of Akron



0 5 10 15 20 25 MILES



created locational advantages for important supply and support companies. Together the agglomeration of these industrial functions developed an economic infrastructure that still rivals any location in the United States.

Quickly following the establishment of large-scale rubber production plants in Akron, new companies formed to support and supply these operations with molds, dies, and various processing and material handling machinery. In turn, over time other companies rose to supply and support these industries, too, in fields such as metal forging and stamping. Many of these new firms were spun off by entrepreneurs formerly connected with the rubber companies, creating a strong industrial network.

Much of this development occurred in the initial decades of this century, given the explosive growth in rubber production, and gave Akron the image of a manufacturing city. However, this birthing process has continued throughout the years and, in recent years, has become more specialized and sophisticated.

Today, Akron's economic functions and employment base are both growing and changing. Economic activities once dominated by tire production have given way to corporate functions of

administration and research and to education, government, business and health services.

Akron's workforce has undergone dramatic change in structural form. Manufacturing employment has declined from a high of just over 100,000 jobs in 1953 to roughly 65,000 jobs in 1983. Despite this decrease in manufacturing jobs, total jobs in the Akron SMSA have *increased* during the last three decades, reaching a high of nearly 260,000 in 1979.

Job growth in Akron kept pace with the nation's until 1972. In the four years following the 1974-75 recession, job formation in the Akron SMSA grew at less than the national rate. The absolute number of jobs peaked in 1979 with 36 percent more jobs than in 1964 (see Fig. 1). Manufacturing employment as a percentage of the total began to decline in 1964 from 46 percent and reached a low of 28 percent in 1983. Despite these job losses, Akron employment has managed to grow because of sharp increases in services, trade and government sectors. For example, service jobs have more than doubled since 1964 as can be seen in Tables 1 and 2.

#### Importance of Nonmanufacturing Industry

The importance of nonmanufacturing firms in generating replacement jobs for the net loss in manufacturing has been crucial to Akron's economy. The service-oriented industry sector includes transportation services, communications and public utilities, finance, real estate, and insurance, miscellaneous other services (including business and health), and government. Over the last 20 years, Akron's nonmanufacturing base has developed into a broader and, in some cases, deeper mix of service/

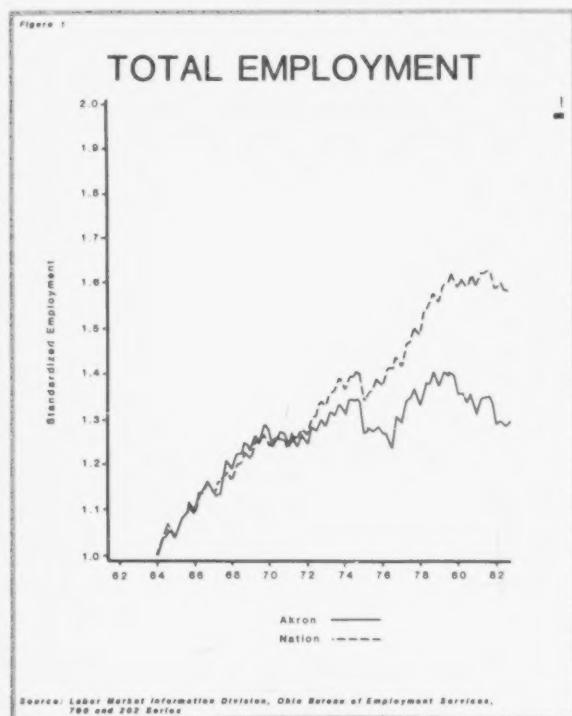


**Table 1**  
**Industry Change in the Akron SMSA,**  
**1964-1983 (Industry Employment as**  
**Percent of Total Employment)**

|                                     | 1964  | 1974  | 1983  | Change<br>1964-1983 |
|-------------------------------------|-------|-------|-------|---------------------|
| Construction                        | 3.3   | 3.3   | 2.8   | -.5                 |
| Mining                              | .1    | .1    | .3    | .2                  |
| Manufacturing                       | 45.9  | 37.3  | 27.5  | -18.4               |
| Durable                             | 19.8  | 17.1  | 13.6  |                     |
| Nondurable                          | 26.1  | 20.2  | 13.5  |                     |
| Transportation & Utilities          | 6.3   | 5.7   | 4.9   | -1.4                |
| Wholesale & Retail Trade            | 18.8  | 21.1  | 23.7  | 4.9                 |
| Finance, Insurance &<br>Real Estate | 3.0   | 3.2   | 3.7   | .7                  |
| Services                            | 10.3  | 15.1  | 19.8  | 9.5                 |
| Government                          | 12.3  | 15.2  | 17.2  | 4.9                 |
|                                     | 100.0 | 100.0 | 100.0 | 0.0                 |

*Source: Labor Market Information Division, Ohio Bureau of Employment Services, 790 Series.*



**Table 2**  
**Comparison of Payrolls and Employment in**  
**Selected Growing and Declining Industry**  
**Groups in Akron SMSA**

| SIC                                                                 | Industry Group                | Akron SMSA<br>Growth Rate<br>1974-1983 | % of Total<br>Employment in<br>Akron SMSA,<br>1982 | % of Total<br>Payroll in<br>Akron SMSA,<br>1982 | Job Quality<br>% Payroll<br>-<br>% Employees |
|---------------------------------------------------------------------|-------------------------------|----------------------------------------|----------------------------------------------------|-------------------------------------------------|----------------------------------------------|
| <b>I. FOURTEEN GROWTH GROUPS</b>                                    |                               |                                        |                                                    |                                                 |                                              |
| <b>A. GROWTH FASTER IN AKRON SMSA THAN IN NATION (1964-1983)</b>    |                               |                                        |                                                    |                                                 |                                              |
| 26                                                                  | Paper & Allied Products       | +1.1%                                  | .745                                               | .882                                            | 1.18                                         |
| 27                                                                  | Printing & Publishers         | +5.3%                                  | 1.321                                              | 1.435                                           | 1.09                                         |
| 54                                                                  | Retail Food Stores            | +4.3%                                  | 3.426                                              | 2.162                                           | .63                                          |
| 58                                                                  | Eating & Drinking Places      | +43.8%                                 | 7.261                                              | 2.078                                           | .29                                          |
| 63                                                                  | Insurance                     | +2.9%                                  | .797                                               | .894                                            | 1.12                                         |
| 65                                                                  | Real Estate                   | +11.6%                                 | .646                                               | .436                                            | .67                                          |
| 73                                                                  | Business Services             | +51.9%                                 | 3.141                                              | 1.826                                           | .58                                          |
| 81                                                                  | Legal Services                | +48.9%                                 | .513                                               | .600                                            | 1.17                                         |
| <b>B. GROWTH SLOWER IN AKRON SMSA THAN IN NATION (1964-1983)</b>    |                               |                                        |                                                    |                                                 |                                              |
| 48                                                                  | Communications                | -5.7%                                  | .909                                               | -                                               | -                                            |
| 49                                                                  | Elec., Gas, Sanitary          | +1.6%                                  | 1.800                                              | -                                               | -                                            |
| 57                                                                  | Retail Furniture              | -21.9%                                 | .609                                               | .431                                            | .71                                          |
| 60-62                                                               | Banking/Finance               | +15.4%                                 | 2.117                                              | 1.770                                           | .84                                          |
| 76                                                                  | Misc. Repair Services         | -19.9%                                 | .503                                               | .409                                            | .81                                          |
| 80                                                                  | Health Services               | +48.1%                                 | 7.494                                              | 6.921                                           | .92                                          |
| <b>II. TWELVE DECLINING GROUPS</b>                                  |                               |                                        |                                                    |                                                 |                                              |
| <b>A. DECLINING IN AKRON SMSA/GROWTH IN NATION (1964-1983)</b>      |                               |                                        |                                                    |                                                 |                                              |
| 28                                                                  | Chemicals                     | -12.6%                                 | 1.519                                              | -                                               | -                                            |
| 30                                                                  | Rubber & Plastics             | -45.0%                                 | 5.664                                              | 6.498                                           | 1.15                                         |
| 32                                                                  | Stone, Clay & Glass           | -39.7%                                 | .872                                               | 1.092                                           | 1.25                                         |
| 35                                                                  | Machinery (except electrical) | -28.4%                                 | 5.138                                              | 5.548                                           | 1.08                                         |
| 42                                                                  | Trucking/Warehousing          | -31.8%                                 | 3.528                                              | 4.762                                           | 1.35                                         |
| 52                                                                  | Building Materials            | -29.6%                                 | .899                                               | .700                                            | .78                                          |
| 53                                                                  | General Merchandise Stores    | -34.2%                                 | 2.594                                              | 1.127                                           | .43                                          |
| 70                                                                  | Hotels/Motels                 | -26.2%                                 | .799                                               | .288                                            | .36                                          |
| <b>B. DECLINING FASTER IN AKRON SMSA THAN IN NATION (1964-1983)</b> |                               |                                        |                                                    |                                                 |                                              |
| 20                                                                  | Food & Kindred                | -16.2%                                 | 1.071                                              | 1.123                                           | 1.05                                         |
| 34                                                                  | Fabricated Metals             | -27.2%                                 | 5.434                                              | 6.736                                           | 1.24                                         |
| 41                                                                  | Passenger Transportation      | -45.3%                                 | .094                                               | .056                                            | .60                                          |
| 55                                                                  | Auto Dealers                  | -28.2%                                 | 2.217                                              | 1.521                                           | .69                                          |

Sources: Labor Market Information Division, Ohio Bureau of Employment Services; and "County Business Patterns," U.S. Department of Commerce, Bureau of the Census.



trade industries which more closely mirrors that of the nation.

Akron's fastest growing industries over the last two decades have been in nonmanufacturing and are by order of growth: business services (51.9 percent); legal services (48.9 percent); health services (48.1 percent); and eating and drinking establishments (43.8 percent). The yearly average employment growth rate for these industry sectors ranges from 4.4 to 5.2 percent over the last decade. A very distant fifth place industry is banking/finance (15.4 percent), where employment grew an average of 1.5 percent each year (see Table 2).

It appears that Akron's place in a service-oriented economy follows from important corporate functions of central administration and research and development. Other strengths of the region include trucking and warehousing, wholesale trade in durable goods, electric, gas, and waste services, and retail trade. Given its size and proximity to Cleveland, Akron's performance in support services is strong. Overall, the growth in business services and other professional services as reflected by the increasing number of regional offices of gas and electric utilities, communications, and financial institutions indicates a developing capacity within Akron's service sector to support corporate functions.

#### **Importance of the Manufacturing Industry**

Several sectors of manufacturing show varying degrees of performance in the Akron region, measured by job growth. These include printing and publishing and paper and allied products, which are growing faster in the Akron SMSA than the nation, and fabricated metals, nonelectrical machinery, chemicals, rubber and plastics, electrical machinery, aircraft and parts, and instruments. More specifically, industries experiencing good employment growth since 1974 are:

##### **SIC<sup>1</sup> Industries New to Akron**

|     |                                        |
|-----|----------------------------------------|
| 264 | Miscellaneous converted paper products |
| 272 | Periodicals                            |
| 275 | Commercial printing                    |
| 278 | Blankbooks and bookbinding             |
| 282 | Industrial inorganic chemicals         |
| 284 | Soaps, cleaners, and toilet goods      |
| 285 | Paints and allied products             |

##### **Traditional Akron Industries**

|     |                                     |
|-----|-------------------------------------|
| 307 | Miscellaneous plastic products      |
| 347 | Metal services                      |
| 349 | Miscellaneous fabricated metals     |
| 354 | Metal working machinery             |
| 356 | General industry machinery          |
| 358 | Refrigeration and service machinery |

<sup>1</sup>SIC = Standard Industrial Classification, produced by the U.S. Bureau of Standards

#### **High-Tech Industry in Akron**

In almost any discussion of regional economic growth from manufacturing, the so-called "high-tech" industries are considered first and last as the evidence of a viable manufacturing economy. It is important, at least, to assess Akron's mix of technology-driven industries. First, though, some clarification is in order.

High technology is an overworked term with little precise meaning. Too often the term is restricted to microelectronics and space-age technologies. The approach used by recent scholars is to label an industry as high tech, not because the product involves sophisticated technology, but because of the degree to which the industry appears to develop or work with the evolving and most sophisticated technology for an industry sector. Working with sophisticated technology is reflected in the "capacity within an industry to apply scientific and engineering skills to the development of products and processes." This can be measured by the number of scientific professionals and technicians as a percent of the total workforce.

Using this measure, manufacturing industries that are technology oriented include:

- all of the chemical, instruments, electrical/electronic equipment industries;
- portions of the industrial machinery industry;
- automotive and aircraft and missiles in the transportation industry;
- tires and tubes in the rubber industry.

Using the same definitions of high-tech industries as applied in the national studies, Akron does surprisingly well (see Table 3). With and without the inclusion of tires and tubes industry employment, the share of total employment in the Akron-based industry that is in high-tech industries is close to the national average. Since 1974, excluding tires and tubes, the Akron region has experienced good growth in high-tech industries—11 percent overall from 1974 to 1980 (see Tables 3 and 4). This growth is most evident in the chemical industries, communication equipment, electrical equipment, surgical, medical and dental instruments, and refrigeration equipment. All these are growing from a modest employment base. As well, firms organized in the Akron region as research and development laboratories and computer and data processing services have grown at national rates.

High-tech industries which are declining in Akron include tires and tubes (over 9,000 net loss of jobs alone between 1974 and 1980) and selected special industrial machinery industries which are declining nationally as well.

The technological and professional orientation of the Akron manufacturing workforce has increased over time as the corporate functions of central administration and research and development have intensified and as the development of new high-tech industries has evolved. Managers and

**Table 3**  
**Employment in Technology-oriented**  
**Industries, Akron SMSA, by Industry,**  
**1974-1980**

| SIC Code | Industry                                                       | High Tech Group |    |     | Employment        |                   | Percent Change 1974-80 | Percent of Total Manufacturing 1980 |
|----------|----------------------------------------------------------------|-----------------|----|-----|-------------------|-------------------|------------------------|-------------------------------------|
|          |                                                                | I               | II | III | 1974              | 1980              |                        |                                     |
| 281      | Industrial inorganic chemicals                                 | X               |    | X   | 276               | 1750 <sup>E</sup> | 534.1 <sup>E</sup>     | 2.2                                 |
| 282      | Plastic materials & synthetics                                 | X               |    | X   | 550 <sup>E</sup>  | 750 <sup>E</sup>  | 36.4 <sup>E</sup>      | 0.9                                 |
| 283      | Drugs                                                          | X               | X  | X   | -                 | -                 | -                      | -                                   |
| 284      | Soaps, cleaners & toilet preparations                          | X               |    | X   | 175 <sup>E</sup>  | 444               | 153.7 <sup>E</sup>     | 0.5                                 |
| 285      | Paints & allied products                                       | X               |    | X   | 179               | 366               | 104.5                  | 0.4                                 |
| 286      | Industrial organic chemicals                                   | X               |    | X   | 375 <sup>E</sup>  | 375 <sup>E</sup>  | 0.0 <sup>E</sup>       | 0.5                                 |
| 287      | Agricultural chemicals                                         | X               |    | X   | -                 | 60 <sup>E</sup>   | -                      | 0.1                                 |
| 289      | Miscellaneous chemical products                                | X               |    | X   | 309               | 335               | 8.4                    | 0.4                                 |
| 291      | Petroleum refining                                             | X               |    | X   | -                 | -                 | -                      | -                                   |
| 301      | Tires & inner tubes                                            | X               |    |     | 20173             | 11028             | -45.3                  | 13.6                                |
| 324      | Cement, hydraulic                                              | X               |    |     | -                 | -                 | -                      | -                                   |
| 348      | Ordinance & accessories                                        | X               |    | X   | 435 <sup>E</sup>  | 60 <sup>E</sup>   | -86.2 <sup>E</sup>     | 0.1                                 |
| 351      | Engines & turbines                                             | X               |    | X   | -                 | -                 | -                      | -                                   |
| 352      | Farm & garden machinery                                        | X               |    |     | 175 <sup>E</sup>  | 53                | -69.7 <sup>E</sup>     | 0.1                                 |
| 353      | Construction, mining & material handling machinery             | X               |    |     | 3815              | 3089              | -19.0                  | 3.8                                 |
| 354      | Metalworking machinery                                         | X               |    |     | 2657              | 3177              | 19.6                   | 3.9                                 |
| 355      | Special industry machinery, except metalworking                | X               |    | X   | 3593              | 2927              | -18.5                  | 3.6                                 |
| 356      | General industrial machinery                                   | X               |    |     | 542               | 681               | 25.6                   | 0.8                                 |
| 357      | Office, computing & accounting machines                        | X               | X  | X   | -                 | -                 | -                      | -                                   |
| 358      | Refrigeration & service industry machinery                     | X               |    |     | 60 <sup>E</sup>   | 141               | 135.0 <sup>E</sup>     | 0.2                                 |
| 361      | Electric transmission & distribution equipment                 | X               |    | X   | 175 <sup>E</sup>  | -                 | -                      | -                                   |
| 362      | Electrical industrial apparatus                                | X               |    | X   | 1244 <sup>E</sup> | 695 <sup>E</sup>  | -44.1 <sup>E</sup>     | 0.8                                 |
| 363      | Household appliances                                           | X               |    |     | -                 | -                 | -                      | -                                   |
| 364      | Electric lighting & wiring equipment                           | X               |    |     | 550 <sup>E</sup>  | 750 <sup>E</sup>  | 36.4 <sup>E</sup>      | 0.9                                 |
| 365      | Radio & TV receiving equipment                                 | X               |    | X   | -                 | -                 | -                      | -                                   |
| 366      | Communication equipment                                        | X               | X  | X   | 88                | 348               | 295.4                  | 0.4                                 |
| 367      | Electronic components & accessories                            | X               | X  | X   | 119               | 394               | 231.1                  | 0.5                                 |
| 369      | Miscellaneous electrical machinery                             | X               |    | X   | -                 | -                 | -                      | -                                   |
| 371      | Motor vehicles & equipment                                     | X               |    |     | 951 <sup>E</sup>  | 852 <sup>E</sup>  | -10.4 <sup>E</sup>     | 1.0                                 |
| 372      | Aircraft & parts                                               | X               | X  | X   | 3750 <sup>E</sup> | 3750 <sup>E</sup> | 0.0 <sup>E</sup>       | 4.6                                 |
| 376      | Guided missiles & space vehicles                               | X               | X  | X   | -                 | -                 | -                      | -                                   |
| 381      | Engineering, laboratory, scientific & research instruments     | X               |    | X   | -                 | -                 | -                      | -                                   |
| 382      | Measuring & controlling instruments                            | X               |    | X   | 175 <sup>E</sup>  | 283               | 61.7 <sup>E</sup>      | 0.3                                 |
| 383      | Optical instruments & lenses                                   | X               |    | X   | -                 | -                 | -                      | -                                   |
| 384      | Surgical, medical & dental instruments                         | X               |    | X   | 175 <sup>E</sup>  | 375 <sup>E</sup>  | 114.3 <sup>E</sup>     | 0.5                                 |
| 386      | Photographic equipment & supplies                              | X               |    | X   | -                 | -                 | -                      | -                                   |
| 483      | Radio & TV broadcasting                                        | X               |    |     | 177               | 175 <sup>E</sup>  | -1.1 <sup>E</sup>      | -                                   |
| 489      | Communication services, n.e.c. <sup>2</sup>                    | X               |    |     | -                 | -                 | -                      | -                                   |
| 491      | Electric services                                              | X               |    |     | 3750 <sup>E</sup> | 3750 <sup>E</sup> | 0.0 <sup>E</sup>       | -                                   |
| 493      | Combination electric, gas & other utility services             | X               |    |     | -                 | -                 | -                      | -                                   |
| 506      | Wholesale trade, electrical goods                              | X               |    |     | 415               | 565               | 36.1                   | -                                   |
| 508      | Wholesale trade, machinery, equipment & supplies               | X               |    |     | 2389              | 3224              | 34.9                   | -                                   |
| 737      | Computer & data processing services                            | X               |    | X   | 147               | 413 <sup>E</sup>  | 180.9 <sup>E</sup>     | -                                   |
| 7391     | Research & development laboratories                            | X               |    | X   | 60 <sup>E</sup>   | 244               | 306.7 <sup>E</sup>     | -                                   |
| 891      | Engineering, architectural & surveying services                | X               |    |     | 643               | 1000              | 55.5                   | -                                   |
| 892      | Noncommercial educational, scientific & research organizations | X               |    |     | -                 | -                 | -                      | -                                   |

<sup>1</sup>Group I. includes industries with a proportion of technology-oriented workers (engineers, life and physical scientists, mathematical specialists, engineering and science technicians and computer specialists) at least 1.5 times the average for all industries.

Group II. Includes industries with a ratio of R&D expenditures to net sales at least twice the average for all industries.

Group III. Includes manufacturing industries with a proportion of technology-oriented workers equal to or greater than the average for all manufacturing industries, and a ratio of R&D expenditures to sales close to or above the average for all industries.

Two nonmanufacturing industries which provide technical support to high-tech manufacturing industries also are included.

<sup>2</sup>Not elsewhere classified.

<sup>E</sup>Estimate based on middle range for figures shown in County Business Patterns.

Sources: Richard W. Riche, Daniel E. Hecker, and John U. Burgan, "High Technology Today and Tomorrow: A Small Slice of the Employment Pie," Monthly Labor Review, November, 1983, pp.50-58.

"County Business Patterns", Ohio, U.S. Department of Commerce, Bureau of the Census, 1974 and 1980.



scientist/technicians comprise 21 percent and 23 percent, respectively, of total jobs in the rubber and plastics industry. In Canton these figures are 5 percent and 4 percent. In the industrial machinery industry, these figures in Akron are 9 percent and 12 percent of its manufacturing employment. Being technology oriented, Akron exceeds the average for metropolitan economies of its size and diversity.

### Linking the Futures of Polymer Industries and the Akron Northeast Ohio Region

Wilbur Thompson, an eminent scholar in urban economics, advises that mature, sophisticated regional economies such as Akron and Cleveland can determine their comparative (competitive) economic advantage for industry according to:

- Routine operations, ranging across manufacturing, trade and services.
- Precision operations, focusing on industries employing more craftsmen and technicians.
- Research and development, serving as a center of science and technology.
- Central administration, performing the headquarters function.
- Entrepreneurship, capturing the propensity for spin-offs and new business formations.

The nearly total shift of tire-related production

from Akron to places such as Alabama and Oklahoma demonstrates clearly that *routine operations* employing low skill labor favor other regions and off-shore locations. Yet, proficiency in the science and technology of the industry can provide economic opportunity for the region. Jane Jacobs, a renowned city planner, stresses that "cities grow and become economically versatile by replacing goods that were once imported with goods they make themselves." This process of import substitution is prompted by *Innovation and Improvisation* — "adaptations in design, materials, or methods of production which create vigorous new exports from the region." (Jacobs, 1984)

### Polymer Production in Akron

Despite the loss of rubber manufacturing of tires and tubes, significant production of other rubber products remains. Since the 1960's plastics manufacturing has expanded significantly and together rubber and plastic products have become the region's major source of polymer production.

Most importantly, Akron continues to be a production center for polymer products<sup>2</sup> and processing technology. Current demand trends call

<sup>2</sup>Polymer products include: rubber and plastic fabricated products, synthetic fibers, paints and coatings, and adhesives and sealants.

**Table 4**  
**Employment In All Technology-Oriented Industries, Akron SMSA, 1974-1980**

| SIC Code | Description of Analysis                                                                               | Employment in High-Tech Groups |        |           |       |           |        | Percent Change |           |       |
|----------|-------------------------------------------------------------------------------------------------------|--------------------------------|--------|-----------|-------|-----------|--------|----------------|-----------|-------|
|          |                                                                                                       | I                              |        | II        |       | III       |        | 1974-80        |           |       |
|          |                                                                                                       | 1974                           | 1980   | 1974      | 1980  | 1974      | 1980   | I              | II        | III   |
| 281-892  | Total Employment in Akron SMSA in All High-Technology Industries                                      | 48,122                         | 42,054 | 3,957     | 4,492 | 11,825    | 13,569 | -12.6%         | 13.5%     | 14.7% |
|          | Total Employment in Akron SMSA in All High-Technology Industries Except SIC 301-Tires and Inner Tubes | 27,949                         | 31,026 | No Change |       | No Change |        | 11.0%          | No Change |       |
|          | Total High-Tech Employment in Akron SMSA as Percent of Total Private Industry Employment              | 21.4%                          | 17.7%  | 1.8%      | 1.9%  | 5.3%      | 5.7%   |                |           |       |

**Employment In Technology-Oriented Industries, Manufacturing Sector Akron SMSA, 1974-1980**

|         |                                                                                 |        |        |           |       |           |        |        |           |       |
|---------|---------------------------------------------------------------------------------|--------|--------|-----------|-------|-----------|--------|--------|-----------|-------|
| 281-386 | Employment in Akron SMSA in Manufacturing High-Tech Industries                  | 40,541 | 32,683 | 3,957     | 4,492 | 11,618    | 12,912 | -19.4% | 13.5%     | 11.1% |
|         | Employment in Akron SMSA in Manufacturing High-Tech Industries Except SIC 301   | 20,368 | 21,655 | No Change |       | No Change |        | 0.6%   | No Change |       |
|         | High-Tech Manufacturing Employment as Percent of Total Manufacturing Employment | 44.0%  | 40.4%  | 4.3%      | 5.5%  | 12.6%     | 16.0%  |        |           |       |

Source: "County Business Patterns", Ohio, U.S. Department of Commerce, Bureau of the Census, 1974 and 1980



for sophisticated and application engineered polymer products opening up new economic opportunities for experienced people and companies in the region. This advantage is further strengthened by the major U.S. cluster of custom processors of rubber or plastic materials. These companies often mix special chemical recipes for producers of specialized rubber and plastic related products and for companies pioneering new markets.

While overall employment in rubber and plastics manufacturing continues in a downward slide, firms which process plastic into products have been growing. By 1982, miscellaneous plastics accounted for 5 percent of Akron's manufacturing jobs, twice the national percentage, and second only to hoses and belts. Today miscellaneous rubber products provide almost one-third fewer jobs than in 1974, a loss that is greater than that occurring nationally. This change can be explained at least partially by the fact that some local firms are mechanizing their operations and converting to plastic products. In short, there are clear signs that low-technology plastics and rubber production in the region is in transition and the shift to new, sophisticated, products with limited runs caused decreases in local employment. However, the long term effect may be less negative than the numbers suggest.

#### **Akron's Key Polymer Support Industry: Machinery**

Machinery and mold, tool and die manufacturers started up in the area to support local rubber companies and, to a lesser extent, the steel companies. The history of this set of industries in the region to some extent parallels that of their customers. They grew along with steel and rubber production and helped expand their capacities by new technology development but through the years found it necessary to diversify in order to survive in very competitive markets.

Machinery manufacturing firms have lost 40 percent of their employment base since 1974 through closure and contraction, and contribute only 3 percent of the manufacturing jobs in Akron regional workplaces. In earlier years companies provided single customers with specialized equipment and services. As time passed, new areas of opportunity opened and technology transferred to new uses, customers, and industries. By the late 1950's, some equipment and technology could be standardized and fell to large centralized production companies. With declining tire production in the region beginning in the 1950's, the diversification of markets and generation of new technology and innovation became critically important. By the late 1970's, two decades of declining regional production, shutdowns, and disinvestment in rubber and steel eliminated those who lagged in new technology and those without sufficient capital to make a transition.

In effect, the region is left with fewer machinery firms; but those that remain for the most part are

technologically prepared for the rapid economic changes now occurring. These companies have a business plan built upon developing continuous flows of new technology needed by many different industries.

Mold, tool and die firms have suffered less in the transition and have been a growing industry over the last eight years. They now account for about 5 percent of Akron's manufacturing jobs. The typical firm has been in business for 17 years, employs 25 workers, and had \$1.7 million in sales in 1983. Customers' plants are located in Northeast Ohio, elsewhere in Ohio, and in states within a 300 to 400 mile radius. Some sell mostly to customers within this region, but most local firms primarily ship their products out of state.

Both machinery and mold, tool and die manufacturing firms are surviving in Akron, in part because of: their nearness to the headquarters of major industrial companies, the reputation and respect that area companies have among their customers locally and in the nation, and the network of businesses that supply these firms with needed materials and technical services.

Overall, manufacturing in Akron, Cleveland, and the surrounding SMSAs in Northeast Ohio include both technology oriented and "low-tech" concerns which are part of a high caliber technology infrastructure geared to polymer innovations. Developing new products and processing methods are interrelated and are important to understanding the capacity of the region for growth through innovation. The complement of firms extends from chemical suppliers who learned the trade from the bottom up to custom material mixers who service the small-to-medium size firms, to machinery and mold, tool, and die industries for bringing new products into production, to business services that range from moving products to financing the next new product line.

From the very beginning, it is evident that companies in Akron and elsewhere in Northeast Ohio were on the cutting edge of innovations in a broad range of polymer-based products for industry and consumer use. The cluster of major rubber manufacturers in Akron led the world in rubber applications, and that leadership carried over to plastics and other synthetic products. The polymer technology infrastructure—comprised of companies, institutions, and individuals, and a tradition of entrepreneurship—that has evolved in this region sets it apart from others.

Economic linkages across these organizations were forged by entrepreneurship and caused this region to become a major applied technology center for polymers in the U.S.

#### **References**

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# Ohio Regional Forecasts for 1986

The Ohio economy is in reality an aggregation of eight separate regional economies, and each region merits individual consideration as we consider prospects for 1986. Economists in six regions filed the following forecasts for the coming year.

## Cincinnati Metropolitan Area\*

By Paul Pleeter and Ron Duritsch  
University of Cincinnati

The economy of the Cincinnati area is expanding. However, it is not expanding at a rapid enough rate to produce a fall in the area's unemployment rate and to absorb some of the displacements that will take place in the manufacturing sector. At least three major cutbacks or plant closings are expected in the coming year, including the loss of 1,350 jobs with the closing of Ford Motor Co.'s Sharonville Plant. Given the continued growth of the nation's economy and the declining value of the dollar overseas, employment in the manufacturing sector is projected to decrease from 171,450 in 1985 to a level of 169,747 this year, largely as a result of these planned closings. Total employment in the area increased, however, from 756,800 approximately 767,500 in 1985. This gain is due to a forecast increase in the service and trade sector of approximately 10,000 workers over the year.

With sluggish growth in total employment and displacement of workers from manufacturing, the unemployment rate is forecast to increase to 8 percent. Using the most recent unemployment rates available, the metropolitan area's unemployment was 7.6 percent for 1985. The increase in the unemployment rate will result not only from a decline in manufacturing employment, but also from a projected increase in the area's labor force. Some growth in service sector employment will help offset these other factors.

Service sector employment traditionally has a lower available wage than does manufacturing employment. The impact of increased service sector employment is to increase area income while decreased manufacturing employment reduces personal employment. Given the relative shift in trends to lower paying jobs, nominal personal income is forecast to grow at a rate of 6 percent, a rate that is somewhat lower than the 6.5 percent in

unemployment rate not only from a decline in manufacturing employment but also from a projected increase in the area's labor force, attracted to some decrease but increased number of jobs made available in the service sector. Cincinnati in 1985 compared to a 5.9 percent growth rate for the U.S. Real personal income is forecast to decline from 3.1 percent in 1985 to 1.7 percent in 1986. A large part of the decreased rate of growth of real personal income is attributable to the rate of inflation. Prices in the Cincinnati area grew at a rate of 2.1 percent compared with 3.8 percent increase for the nation this past year. However, prices are forecast at a rate of 4.3 percent in 1986, a rate that is higher than that forecast for the nation.

## Cleveland Metropolitan Area\*

By Barbara Sherman Rolleston  
Baldwin-Wallace College

The first five years of this decade saw the national economy experience severe cyclical swings—a protracted recession in 1981-82, following on the footsteps of a brief recession in 1980, and a historically robust economic recovery, which is beginning its fourth year. The Cleveland economy, with its heavy concentration in traditional manufacturing, saw little recovery from the 1980 recession and instead experienced an extended slump relative to the national economy. While total employment increased nationally by 1.6 percent between the two recessions (third quarter 1980 - second quarter 1981), Cleveland SMSA employment fell by 1.4 percent. While 1983 marked the first year of the national economic recovery, total SMSA employment continued a decline that began in 1980. Although manufacturing employment comprised only 25 percent of total area employment in 1983, it accounted for 100 percent of the 15,000 net decrease in jobs that year.

The pace of the economic recovery in the Cleveland area quickened in its second year. Although the 2.4 percent rate of employment growth locally was only about half the national rate in 1984, almost 20,000 jobs were created, 30 percent of which were in manufacturing. Particularly hard hit industries over the 1980-83 period in the Cleveland region were fabricated metals (declining 22.2 percent) and nonelectrical machinery (declining 37.2 percent). Perhaps reflecting the depth of their decline, these two industries were the only ones in

\*The Cincinnati Metropolitan Area is the eight county region which includes Butler, Hamilton, Clermont and Warren counties in Ohio; Boone, Campbell and Kenton counties in Kentucky and Dearborn County in Indiana.

\*The Cleveland Metropolitan Statistical Area (MSA) includes Cuyahoga, Geauga, Lake and Medina counties.



the durable manufacturing sector to show improvement in 1984 (increasing 7.4 percent and 8.4 percent, respectively). Employment gains in 1984 in the nonmanufacturing sector were strong, following sluggish growth in 1983, with construction showing the largest increase (6.7 percent). The only nonmanufacturing sector to register an employment decline in 1984 was state and local government, falling by 1.7 percent. Clearly, the cyclical rebound which has strengthened many nonmanufacturing industries has generally bypassed the state and local government sector, which saw its fourth annual drop in employment in 1984.

The economic recovery continued but, as generally anticipated, lost momentum in 1985<sup>1</sup>. Like the national trend, local employment gains in the first three quarters of 1985 were generated entirely in the nonmanufacturing sector, which surpassed its prior 1979 employment peak. Local manufacturing employment, on the other hand, showed steady declines throughout the first three quarters of 1985, reaching its lowest level in more than two years. With nonmanufacturing gains exceeding losses in the manufacturing sector, total area employment grew throughout 1985, reaching its highest level since the end of the recession in 1982.

The Cleveland area unemployment rate dropped in 1985 to 8.4 percent from 9.0 percent in 1984. While these rates are above the U.S. average, the percentage decrease between 1984 and 1985 was much larger locally (6.7 percent) than nationally (4.0 percent). The rate of total local employment growth in 1985 was only one-third the national growth rate, yet Cleveland area manufacturers continued to maintain a longer workweek than the national average. This is likely to reflect the predominance of cyclically sensitive industries in the Cleveland area and the tendency for local manufacturing employers to proceed cautiously in a still uncertain economic environment.

In general, the magnitude of local employment changes in 1985 relative to the nation as a whole reflects the degree to which local manufacturing is concentrated in traditional capital goods industries. Locally, manufacturing employment declined 1.1 percent in 1985 compared to a .65 percent decline nationally, while local nonmanufacturing employment increased 1.6 percent, compared to a 4.3 percent increase nationally. Local capital goods producers, particularly of machine tools, steel, auto parts, and trucks, have been hard hit by the dollar's overall strength and their subsequent competitive disadvantage relative to foreign producers. In addition, the national investment recovery following

the last recession has been concentrated in computer and information processing equipment, industries in which the Cleveland area has been relatively weak.

As in the past, the prospects for the Cleveland economy in 1986 are strongly linked to the performance of the national economy, with local changes generally following but lagging behind national trends. In addition, the local economy is relatively disadvantaged even during recovery periods by its heavy concentration in older, basic capital goods industries and higher than average labor costs, changes in industrial structure favoring service and high-tech industries, and the high percentage of imported durable goods.

Most forecasters expect the national recovery to continue throughout 1986, although at a modest pace that will not greatly exceed the estimated 2.4 percent overall growth rate for 1985. Unemployment is not expected to drop significantly, while inflation should pick up later in the year once the effect of the weakening dollar is translated into domestic prices. In light of the national economic environment, the performance of the local economy is likely to be weak, particularly in the first half of 1986. Large automobile inventories entering 1986 may dampen employment in local auto-related industries, while the impact of the declining dollar on domestic manufacturing is not expected to be felt until late 1986 or early 1987. While interest rates are not expected to rise significantly in 1986, local consumer durable employment may weaken as consumers begin to retrench from their lengthy spending spree and rebuild their depleted savings. Growth in local producer durables industries may be limited by continued uncertainty over tax reform and ample industrial capacity. Overall, growth in the Cleveland economy in 1986 is likely to be sluggish at best, with gains occurring primarily in the latter half of the year.

## Columbus Metropolitan Area\*

By Henry L. Hunker  
The Ohio State University

By late 1985, all seven counties in the Columbus MSA had rates of unemployment below the state average of approximately 9.5 percent, ranging from lows near 6 percent in Delaware and Franklin

<sup>1</sup>1985 averages are based on data for the first three quarters of 1985.

\*The Columbus Metropolitan Statistical Area, consisting of Franklin, Delaware, Fairfield, Madison, Pickaway, and Union counties, has been expanded recently to include a seventh county, Licking.



counties to a high of approximately 9 percent in Fairfield County. From an employment point of view, the Columbus MSA is healthy and expanding.

Much of the growth in employment throughout the MSA can be attributed to expansion of the service sector of the economy. The Columbus area economy exceeds the national rate of expansion in service employment, for example. It has also had a decrease in goods-producing employment, largely manufacturing and construction, double the national decrease in the 1978-1983 period. Thus, currently, employment in the service sector exceeds 75 percent of all employment in the Columbus MSA compared to approximately two-thirds so employed at the state level.

Major growth in service activities has been in general services (i.e., restaurant and hotels, business services, repair services, health, legal, and education services, etc.), in finance, insurance, and real estate services, and in wholesale and retail trade. Clearly, Franklin County is the heart of employment opportunity in the MSA: the County has 80 percent of all employment in the MSA and over 84 percent of employment in the services. Manufacturing accounts for a relatively larger share of employment in the other six counties of the MSA.

In general, the Columbus MSA is more reflective of the national than the state economy, primarily due to the more important role of manufacturing in Ohio. Overall, significant growth in employment in the Columbus MSA is anticipated in the next five years, with most of it coming in aspects of the service economy.

At the end of 1985, Columbus has two major buildings under construction in the Columbus Business District, both reflecting expansion in the service sector—a new state office building and a high-rise office structure, the latter at the long-vacant northwest corner of Broad and High streets, the city's major downtown intersection. In addition, construction of a major new retail shopping mall and associated parking facilities is planned for the long-dormant Capitol South project. Other construction plans are for a 110-unit, high-rise condominium along the riverfront, a riverfront restaurant at the confluence of the Scioto and Olentangy rivers, and the restoration and renovation of the Old Post Office Building to house offices of a local law firm. As in most major urban centers, the economic revitalization of the urban core, with attention to increased office space, expanded retailing opportunities, and some kind of residential space, remains a major focus of public and private sector interest and investment in the Columbus area.

## Dayton Metropolitan Area\*

By John E. Weiler  
University of Dayton

The past year has been a good one for the Dayton area economy. The increase in employment, which began during 1984, continued in both manufacturing and nonmanufacturing areas. The Dayton unemployment rate has remained consistently below the average for Ohio. Heavily dependent on the auto and defense industries, area employment continued to benefit from growth in those industries. Similarly, 1986 promises modest expansion for the area's economy.

Nonmanufacturing employment has also grown. During the past ten years, the Dayton economy has successfully replaced manufacturing jobs with employment in service-related areas. Of particular importance have been finance and business services, wholesale and retail trade, and other service activities. The growth in retail sales, including automobiles, has had a favorable impact on Dayton. In addition, area construction has been increasing. This is especially true for nonresidential construction. Lower interest rates have been a factor in expanding construction, as well as in the rise of other local fixed investment.

As the growth in the national economy slows, the Dayton economy is likely to level off. The area is affected by the demand for durable consumer goods, especially domestically produced automobiles. In addition to the production of autos, trucks and components, the Dayton area has significant employment in the machine tool industry. Much of this industry is dependent on auto production and business capital investment. An economic slowdown is likely to have an adverse effect on both. Part of the reason for the dramatic increase in manufacturing employment was the addition of a second shift at the General Motors Corporation's Moraine truck plant. Unfortunately, this development is not likely to be repeated in the coming year.

One of the two largest area employers is Wright Patterson Air Force Base. Defense has been a growth industry during the Reagan years. However, defense spending is now receiving as much scrutiny as other portions of the federal budget. An increasing portion of Dayton area activity is related to high technology research and development, especially in defense-related activities. The

\*The Dayton Metropolitan Statistical Area includes Montgomery, Miami, Clark, and Greene counties.



successful beginning of the Miami Valley Research Park, on the border of Montgomery and Greene counties, is likely to be a long-term positive influence on the economy. However, it will produce no dramatic increases in employment during the next twelve months.

Dayton's economy in 1986 is likely to mirror the national economy — a period of very modest expansion. Nonresidential construction will continue due to renovation in the downtown area and commercial development of the area along I-675. Another good year in the auto industry would be beneficial for the local economy. The lack of population and income growth will have a somewhat negative effect on retailing. However, the continued development of high technology and research activity is a promising sign for the long run.

## Toledo Metropolitan Area\*

By Michael Magura  
University of Toledo

In 1984 the labor force in the Toledo area was about 290,000 persons, of which about 265,000 were employed. The unemployment rate stood at approximately 9 percent. This 9 percent rate represented an improvement over the 11 percent recorded for 1983.

The economic situation improved further during 1985. Both the labor force and the number of persons employed increased slightly. Although still above the national average, the unemployment rate fell during 1985 to the 8 percent range. The strongest gains were reported in the service and other non-manufacturing sectors. Manufacturing, with the exception of the transportation sector, showed very little improvement and, in some cases, declines. The weak performance in manufacturing employment was perhaps explained by the same productivity gains observed at the national level.

Further gains are anticipated for 1986. The non-durable goods, wholesale trade, retail trade, finance, insurance and real estate, and contract construction sectors are forecast to show increases in employment and payrolls during 1986. Coming off a rather robust 1985, the transportation equipment sector is expected to level off or slightly decline during 1986. Likewise, weakness is forecast for the stone, clay

and glass, machinery, and primary metal industries. Fabricated metal products, transportation and public utilities and services are expected to remain flat for the coming year.

Overall, employment in the Toledo area is expected to dip slightly during the first quarter of 1986. The second quarter promises about a 2 percent increase over the first quarter to be followed by a further 1 percent increase in the third quarter. The final quarter of 1986 is expected to show essentially no change from the third quarter.

## Youngstown-Warren Metropolitan Area\*

By Yih-Wu Liu  
Anthony H. Stocks  
Youngstown State University

With the notable exception of the transportation equipment sector, manufacturing activity in the Youngstown-Warren labor market in 1985 showed practically no improvement over 1984. Market demand for local steel mill products continued to be weak and this contributed to declining employment in the primary metals sector. A somewhat brighter picture is found in the nonmanufacturing sectors, especially in construction and wholesale trade. Construction benefited from the mixed blessings of lower interest rates and a tornado that produced extensive property damage and hence the need for considerable rebuilding in sections of the area. Wholesale trade continues to benefit from expansion in the national economy and proximity to regional markets. However, the growth of jobs in transportation equipment, construction and wholesale trade was not sufficient to lower local unemployment rates which continued at double digit levels in 1985.

What can be expected for 1986? The world-wide excess capacity in steel production seems destined to depress further jobs in local primary metals. In addition, the expected slow growth in the national economy is not likely to stimulate employment in other manufacturing sectors in the Youngstown-Warren area. As a result, we anticipate some decline in manufacturing jobs in 1986, but sufficient growth in the nonmanufacturing sectors to increase total employment by 2,000-3,000. This, coupled with out-migration, could reduce the unemployment rate below double digit figures by the end of 1986.

\*The Toledo Metropolitan Statistical Area includes Lucas, Fulton, and Wood counties.

\*The Youngstown-Warren Metropolitan Statistical Area includes Mahoning and Trumbull counties.





# Econometric Model Generates 1986 Leading Indicator Forecasts for Ohio SMSAs

By James P. Lesage and Michael Magura\*

This article describes the 1986 forecast from the leading indicator forecasting model first presented in the premier issue of *Ohio Economic Trends Review*. The model is an econometric model which establishes the historical nature of the relationship between economic variables felt to be leading indicators of future economic activity levels. Forecast of the future values of these index series are made using the interrelationships and time series properties of the data. The leading indexes forecast by the model are payroll, employment, retail sales, commercial loans, and housing values. Forecasts of these indexes are provided for each of the eight Ohio Standard Metropolitan Statistical Areas (SMSAs).

The econometric forecasting model was run with updated data to produce forecasts for the last two quarters of 1985 and all four quarters of 1986. Some changes in the econometric model used to produce the leading indicator forecasts are described below. In addition, some of the employment and payroll series from the Ohio Bureau of Employment Services (OBES) were redefined, based on new SMSA definitions. This required the use of the revised historical employment and payroll data base to create new index series used by the model.

One change in the reporting of the forecasts is the idea of reporting a "test" forecast in order to provide decision makers using the forecasts with with some idea of the relative accuracy of the forecasts. This involved running an experiment where a four quarter "test" forecast was done over the historical period from 1984-2nd quarter through 1985-2nd quarter. These historical forecasts are generated by the model in an identical way as the

future forecasts reported here. Since we know the actual data for this historical period, comparing the actual data with the forecasts allows us to assess the relative accuracy of the future forecasts. The test forecasts are plotted along with the historical data and the forecast six quarters into the future. These plots indicate that there is a great variation in the confidence that decision makers should assign to the various leading indicator index series being forecast.

The best accuracy appears to be associated with employment and payroll series, where most of the turns are correctly forecast during the 1984-2nd quarter through 1985-2nd quarter test period. The worst accuracy appears to be for the commercial loans and housing value leading indicators. Retail sales appears to be somewhere in between.

A summary check of the accuracy of the forecast provided in the first issue of *Ohio Economic Trends Review* is provided. This involved calculating the average percent error for each of the eight SMSAs. The average percentage error over the five quarters from 1984-2nd quarter to 1985-2nd quarter for the leading indicator series for each SMSA was calculated. The employment and payroll series were not available for all eight SMSAs because of the redefinitions of these areas by the OBES mentioned above. Table 1 below shows the average percentage error for each of the eight SMSAs.

It seems quite clear that the model's performance with respect to housing values and commercial loans was very poor. The other three series exhibit respectable errors. Housing values turned dramatically upward compared to the forecasted magnitudes. The model has been revised to incorporate a national mortgage rate variable in the housing values relations. The 90-day Treasury Bill rate has been added to the commercial loans relations in an attempt to improve performance here as well.

Turning our attention to the forecast for 1986,

\*The authors are, respectively, Assistant Professor of Economics at Bowling Green State University and Associate Professor of Economics at the University of Toledo.



**Table 1**  
**Average percent error of the 1984-2 to**  
**1985-2 forecasts SMSA/Leading Indicator**

|            | Retail<br>Sales | Payroll | Employment | Housing<br>Values | Commercial<br>Loans |
|------------|-----------------|---------|------------|-------------------|---------------------|
| Akron      | 9.2%            | 2.2     | 1.4        | 16.2              | 25.2                |
| Canton     | 6.2             | 1.2     | 0.5        | 29.5              | 14.8                |
| Cincinnati | 1.3             | 1.1     | 1.1        | 26.6              | 4.9                 |
| Cleveland  | 2.4             | 1.2     | 0.4        | 38.6              | 20.8                |
| Columbus   | 8.6             | 8.3     | *          | 37.9              | 12.0                |
| Dayton     | 14.5            | 6.4     | *          | 55.6              | 13.2                |
| Toledo     | 8.1             | 1.4     | *          | 22.0              | 16.3                |
| Youngstown | 11.7            | 1.8     | 0.6        | 74.3              | 38.4                |

\*Not available because of data definition changes.

there are a few points to note. First, the employment and payroll outlook seems very optimistic. Second, the end of 1986 shows a downturn in retail sales for all SMSAs. This seems consistent with some of the national forecasts which point to a downturn during the latter part of 1986.

## Appendices

The graphs presented in the appendices differ slightly from those in the premier issue of *Ohio Economic Trends Review*. For each SMSA, three graphs are presented—for employment, retail sales and payroll. Each contains three separate lines—historical quarterly data from 1980, a six quarter forecast from 1985-2 and a four quarter test forecast 1984-3 to 1985-2.

The data also differ from the prior issue. In the initial issue, a five quarter moving average was applied to the data to provide smoothing, which allowed the relationships among the indicators to be shown. On the graphs in the appendices, the actual data are plotted.

Also, since the last issue, the Ohio Bureau of Employment Services redefined figures for employment, so those numbers vary from the prior tables.

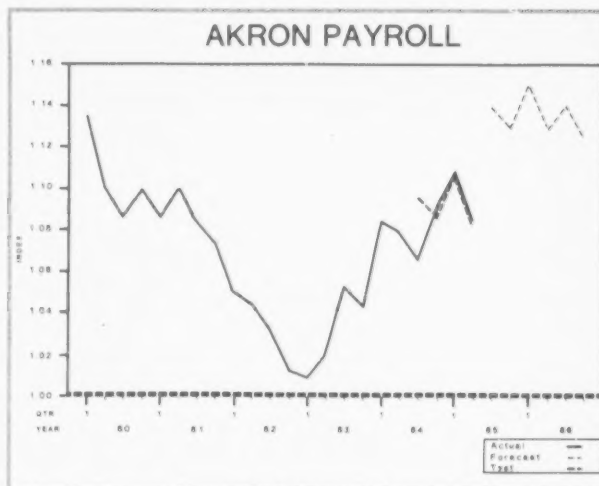
The application of the tables accompanying the graphs is the same as in the previous issue. The quarterly indices are provided, as well as the raw numbers for 1976-1, the base quarter of the indices.



## Appendix 1 Akron SMSA

### Historical Data and Forecasts

| Leading<br>Quarter   | Employment | Commercial<br>Loans | Payroll | Retail<br>Sales | Housing<br>Values |
|----------------------|------------|---------------------|---------|-----------------|-------------------|
| 80-1                 | 1 0659     | 0 7893              | 1 1352  | 1 0036          | 0 7966            |
| 80-2                 | 1 0683     | 0 74                | 1 1     | 0 8986          | 0 6949            |
| 80-3                 | 1 0505     | 0 7174              | 1 0863  | 0 9348          | 0 8051            |
| 80-4                 | 1 0656     | 0 6763              | 1 0996  | 0 9583          | 1 0763            |
| 81-1                 | 1 0302     | 0 63                | 1 0863  | 0 8768          | 0 678             |
| 81-2                 | 1 0576     | 0 6578              | 1 0996  | 0 8261          | 0 6186            |
| 81-3                 | 1 0594     | 0 6228              | 1 084   | 1 0145          | 0 4831            |
| 81-4                 | 1 056      | 0 6516              | 1 0734  | 0 7047          | 0 322             |
| 82-1                 | 1 0128     | 0 6629              | 1 0507  | 0 817           | 0 3475            |
| 82-2                 | 1 0193     | 0 6711              | 1 0445  | 0 9529          | 0 3051            |
| 82-3                 | 1 0022     | 0 6095              | 1 0316  | 0 7808          | 0 5254            |
| 82-4                 | 0 996      | 0 6619              | 1 0133  | 0 7554          | 0 5424            |
| 83-1                 | 0 9656     | 0 6567              | 1 0093  | 0 8967          | 0 7458            |
| 83-2                 | 0 9856     | 0 6793              | 1 02    | 0 817           | 0 7881            |
| 83-3                 | 0 9984     | 0 6187              | 1 0538  | 0 9366          | 0 5593            |
| 83-4                 | 1 0146     | 0 6495              | 1 0436  | 0 8804          | 0 7797            |
| 84-1                 | 0 9897     | 0 691               | 1 084   | 0 972           | 0 6651            |
| 84-2                 | 1 0188     | 0 6844              | 1 0789  | 0 9657          | 0 8702            |
| 84-3                 | 1 0231     | 0 7776              | 1 067   | 0 9886          | 0 6057            |
| 84-4                 | 1 0371     | 1 1151              | 1 09    | 0 9429          | 0 7944            |
| 85-1                 | 1 0188     | 1 0996              | 1 1082  | 1 04            | 0 4974            |
| 85-2                 | 1 0382     | 1 107               | 1 0849  | 1 0571          | 0 5225            |
| FORECAST STARTS HERE |            |                     |         |                 |                   |
| 85-3                 | 1 0569     | 1 1206              | 1 1394  | 1 0598          | 0 6689            |
| 85-4                 | 1 0786     | 1 2819              | 1 1291  | 0 9581          | 0 7573            |
| 86-1                 | 1 06       | 1 3446              | 1 1496  | 1 0101          | 0 7667            |
| 86-2                 | 1 0803     | 1 4137              | 1 1285  | 0 9977          | 0 9448            |
| 86-3                 | 1 0778     | 1 3646              | 1 1396  | 0 9973          | 0 8248            |
| 86-4                 | 1 0847     | 1 3786              | 1 1245  | 0 9207          | 0 8351            |
| TEST FORECASTS       |            |                     |         |                 |                   |
| 84-3                 | 1 0298     | 0 7172              | 1 096   | 0 9702          | 0 686             |
| 84-4                 | 1 0497     | 0 7174              | 1 0861  | 0 9284          | 0 6806            |
| 85-1                 | 1 0239     | 0 9262              | 1 1067  | 0 9801          | 0 7499            |
| 85-2                 | 1 0535     | 0 9009              | 1 0832  | 0 9765          | 0 6397            |
| NOMINAL VALUES       |            |                     |         |                 |                   |
| 76-1                 | 246,967    | 146,776             | 423,986 | 175 0           | 14,585            |





## Appendix 2 Canton SMSA

### Historical Data and Forecasts

| Leading<br>Quarter | Employment | Commercial<br>Loans | Payroll | Retail<br>Sales | Housing<br>Values |
|--------------------|------------|---------------------|---------|-----------------|-------------------|
| 80-1               | 1 1088     | 0 9099              | 1 1624  | 0 9651          | 1 2826            |
| 80-2               | 1 1186     | 0 8426              | 1 1205  | 0 8304          | 0 663             |
| 80-3               | 1 0884     | 0 7762              | 1 062   | 0 9214          | 1 3152            |
| 80-4               | 1 1043     | 0 8465              | 1 1005  | 0 9239          | 1 1848            |
| 81-1               | 1 0865     | 0 7792              | 1 1171  | 0 8167          | 1 2826            |
| 81-2               | 1 1104     | 0 7406              | 1 118   | 0 8666          | 1 0435            |
| 81-3               | 1 1132     | 0 7673              | 1 1078  | 0 7668          | 0 6087            |
| 81-4               | 1 0961     | 0 8644              | 1 1185  | 0 6696          | 0 6739            |
| 82-1               | 1 0481     | 0 7733              | 1 0444  | 0 8092          | 0 4239            |
| 82-2               | 1 0631     | 0 7455              | 1 0371  | 0 8815          | 0 4457            |
| 82-3               | 1 0509     | 0 7069              | 1 0239  | 0 813           | 0 9022            |
| 82-4               | 1 019      | 0 804               | 0 9707  | 0 8928          | 0 5217            |
| 83-1               | 0 9805     | 0 8426              | 0 9566  | 0 8229          | 0 7283            |
| 83-2               | 1 0075     | 0 8416              | 0 9341  | 0 789           | 0 8913            |
| 83-3               | 1 0181     | 0 801               | 1 0093  | 0 8815          | 0 837             |
| 83-4               | 1 0272     | 0 901               | 0 9649  | 0 884           | 0 6413            |
| 84-1               | 1 0152     | 0 867               | 1 0429  | 0 9063          | 0 5622            |
| 84-2               | 1 0511     | 0 8878              | 1 0164  | 0 8968          | 0 7075            |
| 84-3               | 1 0574     | 1 0455              | 1 028   | 0 8889          | 0 8672            |
| 84-4               | 1 0591     | 1 0102              | 1 0207  | 0 9603          | 0 6856            |
| 85-1               | 1 0406     | 1 0015              | 1 0494  | 0 8968          | 0 7143            |
| 85-2               | 1 0661     | 1 0787              | 1 0464  | 1 0794          | 0 8257            |

### FORECAST STARTS HERE

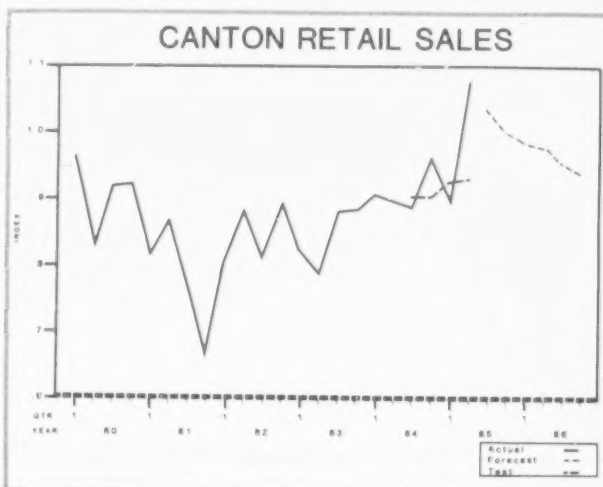
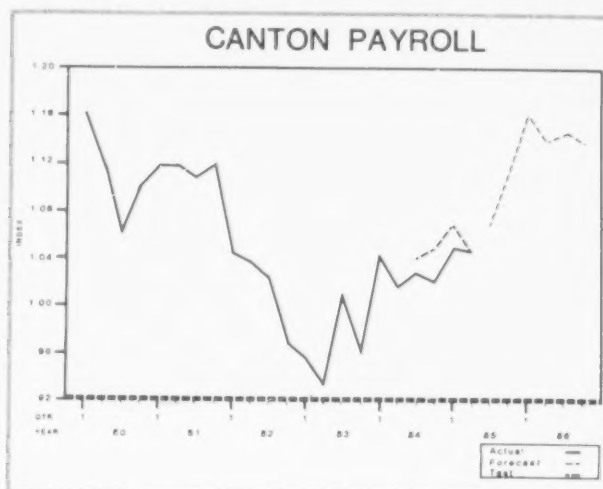
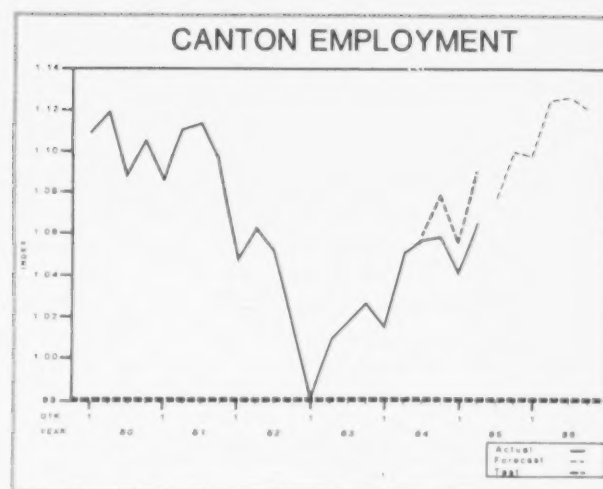
|      |        |        |        |        |        |
|------|--------|--------|--------|--------|--------|
| 85-3 | 1 0764 | 1 3446 | 1 0704 | 1 0313 | 0 9777 |
| 85-4 | 1 0999 | 1 4698 | 1 1175 | 1 0004 | 0 9626 |
| 86-1 | 1 0981 | 1 5646 | 1 1619 | 0 9845 | 1 0298 |
| 86-2 | 1 1249 | 1 4001 | 1 1385 | 0 9782 | 1 1416 |
| 86-3 | 1 1264 | 1 4687 | 1 1463 | 0 9537 | 1 1398 |
| 86-4 | 1 1202 | 1 5167 | 1 1382 | 0 9382 | 1 0594 |

### TEST FORECASTS

|      |        |        |        |        |        |
|------|--------|--------|--------|--------|--------|
| 84-3 | 1 0595 | 0 917  | 1 0418 | 0 9042 | 0 7065 |
| 84-4 | 1 0786 | 0 9517 | 1 0492 | 0 9049 | 0 5431 |
| 85-1 | 1 0561 | 0 9811 | 1 0685 | 0 9276 | 0 6926 |
| 85-2 | 1 0915 | 1 1111 | 1 0457 | 0 9304 | 0 9428 |

### NOMINAL VALUES

|      |         |        |         |       |       |
|------|---------|--------|---------|-------|-------|
| 76-1 | 142.200 | 92.841 | 269.505 | 126.0 | 6.716 |
|------|---------|--------|---------|-------|-------|

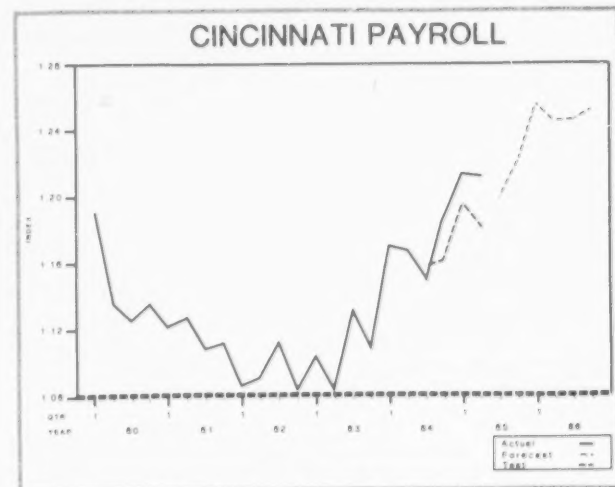
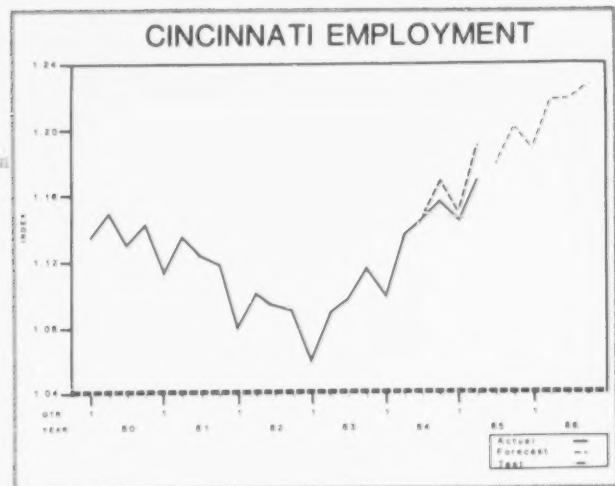




## Appendix 3 Cincinnati SMSA

### Historical Data and Forecasts

| Leading<br>Quarter   | Employment | Commercial<br>Loans | Payroll | Retail<br>Sales | Housing<br>Values |
|----------------------|------------|---------------------|---------|-----------------|-------------------|
| 80-1                 | 1 134      | 1 0127              | 1 1913  | 0 9382          | 0 6418            |
| 80-2                 | 1 1496     | 0 9463              | 1 1363  | 0 8824          | 0 4328            |
| 80-3                 | 1 1304     | 0 9052              | 1 1257  | 0 8793          | 0 7761            |
| 80-4                 | 1 1422     | 0 9491              | 1 1358  | 0 9321          | 0 8881            |
| 81-1                 | 1 114      | 0 8741              | 1 1217  | 0 902           | 0 6343            |
| 81-2                 | 1 1355     | 0 8444              | 1 1272  | 0 8024          | 0 5597            |
| 81-3                 | 1 1235     | 0 6011              | 1 109   | 0 991           | 0 3731            |
| 81-4                 | 1 1191     | 0 8557              | 1 1116  | 0 6787          | 0 2761            |
| 82-1                 | 1 079      | 0 8699              | 1 0868  | 0 8235          | 0 4478            |
| 82-2                 | 1 101      | 0 8444              | 1 0919  | 0 8537          | 0 306             |
| 82-3                 | 1 0939     | 0 8501              | 1 1116  | 0 8356          | 0 3284            |
| 82-4                 | 1 0901     | 0 8543              | 1 0838  | 0 8175          | 0 4776            |
| 83-1                 | 1 0611     | 0 9109              | 1 1045  | 0 8703          | 0 7164            |
| 83-2                 | 1 0889     | 0 9406              | 1 0848  | 0 7964          | 0 5672            |
| 83-3                 | 1 0977     | 0 9576              | 1 1307  | 0 9367          | 0 7612            |
| 83-4                 | 1 1169     | 1 0311              | 1 11    | 0 8884          | 0 6045            |
| 84-1                 | 1 0994     | 1 05                | 1 1696  | 0 9502          | 0 6902            |
| 84-2                 | 1 1358     | 1 1125              | 1 1675  | 0 9637          | 0 6246            |
| 84-3                 | 1 1448     | 1 1648              | 1 1513  | 0 9783          | 0 6956            |
| 84-4                 | 1 1569     | 1 2057              | 1 1871  | 0 9754          | 0 9302            |
| 85-1                 | 1 1448     | 1 2415              | 1 2134  | 1 0047          | 0 6635            |
| 85-2                 | 1 1697     | 1 2896              | 1 2119  | 1 0193          | 0 7229            |
| FORECAST STARTS HERE |            |                     |         |                 |                   |
| 85-3                 | 1 1792     | 1 4862              | 1 1995  | 1 0543          | 0 8416            |
| 85-4                 | 1 2013     | 1 6444              | 1 2209  | 0 9902          | 0 8794            |
| 86-1                 | 1 188      | 1 7897              | 1 2544  | 1 0168          | 0 8865            |
| 86-2                 | 1 2172     | 1 684               | 1 2446  | 0 9885          | 0 8927            |
| 86-3                 | 1 2183     | 1 6844              | 1 246   | 1 0124          | 0 8832            |
| 86-4                 | 1 2262     | 1 6747              | 1 2503  | 0 9574          | 0 8907            |
| TEST FORECASTS       |            |                     |         |                 |                   |
| 84-3                 | 1 1462     | 1 0765              | 1 1581  | 0 9845          | 0 57              |
| 84-4                 | 1 169      | 1 1858              | 1 162   | 0 9448          | 0 7774            |
| 85-1                 | 1 1499     | 1 2666              | 1 196   | 0 972           | 0 7007            |
| 85-2                 | 1 1899     | 1 4203              | 1 1814  | 0 9534          | 0 796             |
| NOMINAL VALUES       |            |                     |         |                 |                   |
| 76-1                 | 527,333    | 358,507             | 866,394 | 341 4           | 43,183            |

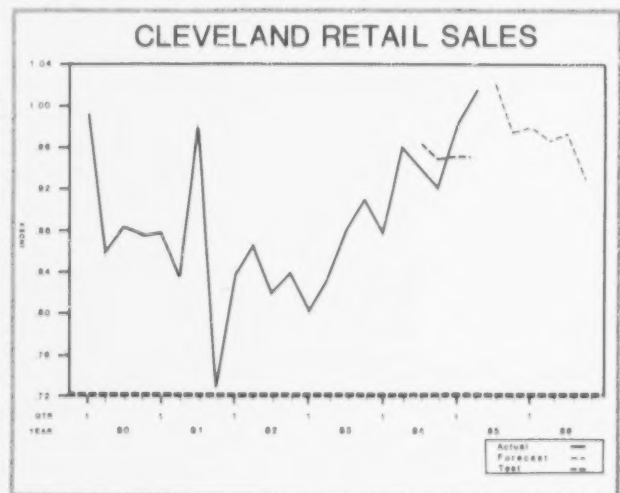
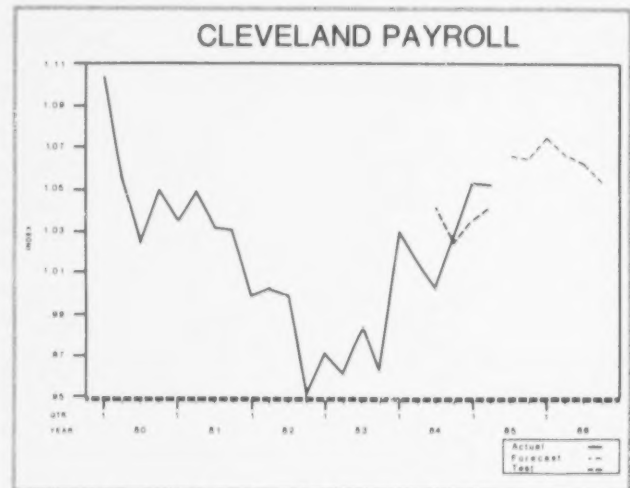
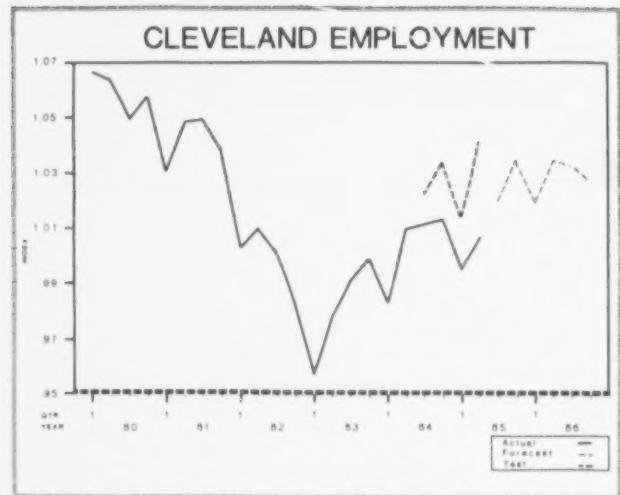




## Appendix 4 Cleveland SMSA

### Historical Data and Forecasts

| Leading<br>Quarter   | Employment | Commercial<br>Loans | Payroll   | Retail<br>Sales | Housing<br>Values |
|----------------------|------------|---------------------|-----------|-----------------|-------------------|
| 80-1                 | 1 0665     | 0 9031              | 1 1044    | 0 9919          | 0 4643            |
| 80-2                 | 1 0635     | 0 8053              | 1 0522    | 0 8591          | 0 2857            |
| 80-3                 | 1 0493     | 0 7833              | 1 0239    | 0 8832          | 0 45              |
| 80-4                 | 1 0574     | 0 7868              | 1 0494    | 0 8752          | 0 7214            |
| 81-1                 | 1 03       | 0 7392              | 1 0344    | 0 8779          | 0 4               |
| 81-2                 | 1 0486     | 0 7084              | 1 0489    | 0 8336          | 0 45              |
| 81-3                 | 1 0491     | 0 7313              | 1 0316    | 0 9825          | 0 3929            |
| 81-4                 | 1 0381     | 0 7463              | 1 03      | 0 7235          | 0 2286            |
| 82-1                 | 1 0026     | 0 793               | 0 9983    | 0 8376          | 0 2143            |
| 82-2                 | 1 0098     | 0 8044              | 1 0022    | 0 8658          | 0 2429            |
| 82-3                 | 1 0011     | 0 874               | 0 9989    | 0 8201          | 0 2286            |
| 82-4                 | 0 9818     | 0 8881              | 0 983     | 0 8389          | 0 3071            |
| 83-1                 | 0 9565     | 0 8934              | 0 9706    | 0 8027          | 0 5214            |
| 83-2                 | 0 978      | 0 8714              | 0 9617    | 0 8322          | 0 5143            |
| 83-3                 | 0 9909     | 0 9048              | 0 9833    | 0 8805          | 0 6               |
| 83-4                 | 0 9987     | 0 9357              | 0 9628    | 0 9101          | 0 5357            |
| 84-1                 | 0 9824     | 0 9048              | 1 0302    | 0 8767          | 0 5886            |
| 84-2                 | 1 0095     | 1 1254              | 1 0149    | 0 9611          | 0 6439            |
| 84-3                 | 1 0117     | 1 1599              | 1 0025    | 0 9398          | 0 4736            |
| 84-4                 | 1 0132     | 1 153               | 1 0312    | 0 9207          | 0 4465            |
| 85-1                 | 0 9945     | 1 1784              | 1 0535    | 0 9824          | 0 7021            |
| 85-2                 | 1 0072     | 1 2096              | 1 052     | 1 0142          | 0 6437            |
| FORECAST STARTS HERE |            |                     |           |                 |                   |
| 85-3                 | 1 0192     | 1 3518              | 1 0761    | 1 0253          | 0 6809            |
| 85-4                 | 1 0345     | 1 4251              | 1 0943    | 0 9741          | 0 7166            |
| 86-1                 | 1 0189     | 1 4304              | 1 1257    | 0 9794          | 0 7585            |
| 86-2                 | 1 0342     | 1 3995              | 1 1382    | 0 9669          | 0 8031            |
| 86-3                 | 1 0325     | 1 4037              | 1 16      | 0 9734          | 0 7277            |
| 86-4                 | 1 0271     | 1 3466              | 1 1753    | 0 9294          | 0 7085            |
| TEST FORECASTS       |            |                     |           |                 |                   |
| 84-3                 | 1 0219     | 1 0576              | 1 0417    | 0 964           | 0 5643            |
| 84-4                 | 1 0341     | 1 2233              | 1 024     | 0 9485          | 0 5493            |
| 85-1                 | 1 0136     | 1 1868              | 1 0356    | 0 9524          | 0 5932            |
| 85-2                 | 1 0413     | 1 3496              | 1 0421    | 0 9514          | 0 7197            |
| NOMINAL VALUES       |            |                     |           |                 |                   |
| 76-1                 | 845,633    | 1,146,470           | 1,558,958 | 470.3           | 55,657            |





## Appendix 5 Columbus SMSA

### Historical Data and Forecasts

| Leading<br>Quarter | Employment | Commercial<br>Loans | Payroll | Retail<br>Sales | Housing<br>Values |
|--------------------|------------|---------------------|---------|-----------------|-------------------|
| 80-1               | 1 1398     | 2 1383              | 1 1634  | 0 9414          | 0 8723            |
| 80-2               | 1 1499     | 2 0706              | 1 1411  | 0 8887          | 0 5957            |
| 80-3               | 1 1306     | 2 0245              | 1 1402  | 0 8556          | 1 0213            |
| 80-4               | 1 1607     | 2 0202              | 1 155   | 0 9323          | 1 0851            |
| 81-1               | 1 1268     | 2 0245              | 1 1356  | 0 8842          | 0 8298            |
| 81-2               | 1 1473     | 2 0158              | 1 1458  | 0 8451          | 0 617             |
| 81-3               | 1 1336     | 2 0158              | 1 1323  | 0 9699          | 0 4113            |
| 81-4               | 1 1459     | 2 1787              | 1 1388  | 0 6692          | 0 2057            |
| 82-1               | 1 1101     | 2 2622              | 1 1134  | 0 8541          | 0 3333            |
| 82-2               | 1 1205     | 2 304               | 1 1499  | 0 818           | 0 4184            |
| 82-3               | 1 1017     | 2 3156              | 1 1481  | 0 8195          | 0 4823            |
| 82-4               | 1 1161     | 2 4683              | 1 1305  | 0 7609          | 0 6809            |
| 83-1               | 1 0866     | 2 572               | 1 162   | 0 7955          | 1 0567            |
| 83-2               | 1 1171     | 2 5893              | 1 1601  | 0 8586          | 0 7943            |
| 83-3               | 1 127      | 2 4726              | 1 1994  | 0 8692          | 1 0851            |
| 83-4               | 1 153      | 2 6657              | 1 1569  | 0 8902          | 1 0496            |
| 84-1               | 1 1406     | 2 6                 | 1 2811  | 0 9715          | 1 4827            |
| 84-2               | 1 1754     | 2 9146              | 1 2417  | 0 922           | 1 2187            |
| 84-3               | 1 1766     | 3 0874              | 1 2848  | 0 9165          | 1 1421            |
| 84-4               | 1 206      | 2 8927              | 1 2876  | 0 9056          | 1 5541            |
| 85-1               | 1 1904     | 2 9386              | 1 3329  | 0 9602          | 1 1501            |
| 85-2               | 1 2139     | 2 9197              | 1 3316  | 0 9793          | 1 4326            |

#### FORECAST STARTS HERE

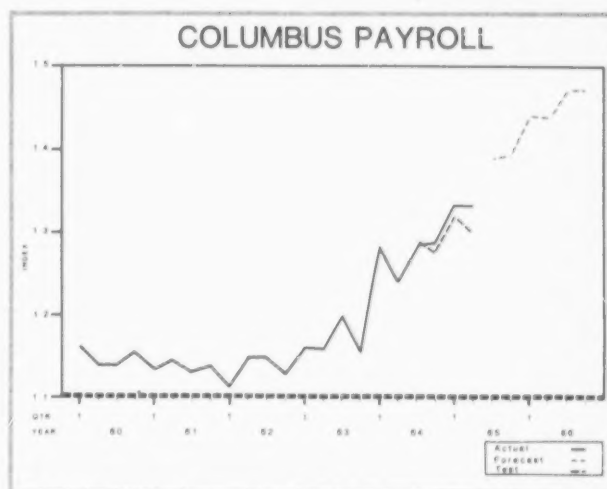
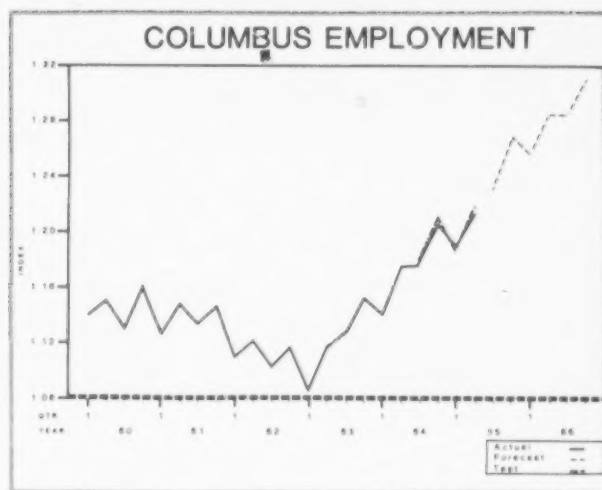
|      |        |        |        |        |        |
|------|--------|--------|--------|--------|--------|
| 85-3 | 1 2308 | 3 4098 | 1 3903 | 0 9794 | 1 4628 |
| 85-4 | 1 2694 | 3 6147 | 1 3959 | 0 9511 | 1 5558 |
| 86-1 | 1 2569 | 4 0632 | 1 4435 | 0 9604 | 1 554  |
| 86-2 | 1 2853 | 3 9222 | 1 4415 | 0 9446 | 1 5164 |
| 86-3 | 1 2847 | 4 1638 | 1 4758 | 0 9397 | 1 4318 |
| 86-4 | 1 3099 | 4 2027 | 1 4777 | 0 8888 | 1 4522 |

#### TEST FORECASTS

|      |        |        |        |        |        |
|------|--------|--------|--------|--------|--------|
| 84-3 | 1 1802 | 2 7562 | 1 2911 | 0 9295 | 1 1488 |
| 84-4 | 1 2107 | 3 0382 | 1 2758 | 0 8979 | 1 3175 |
| 85-1 | 1 1865 | 3 2101 | 1 3197 | 0 9301 | 1 2777 |
| 85-2 | 1 2208 | 2 7777 | 1 2985 | 0 9324 | 1 3423 |

#### NOMINAL VALUES

|      |         |         |         |       |        |
|------|---------|---------|---------|-------|--------|
| 76-1 | 489,167 | 283,309 | 717,936 | 336 6 | 36,638 |
|------|---------|---------|---------|-------|--------|

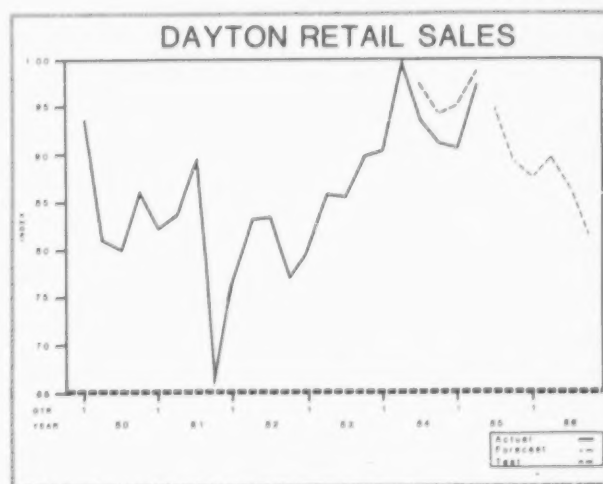
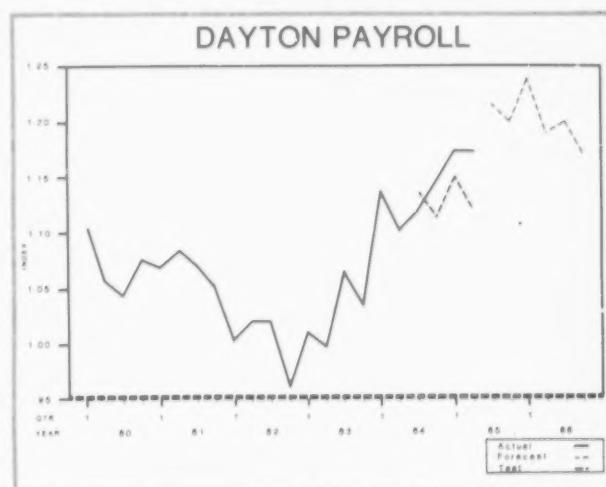
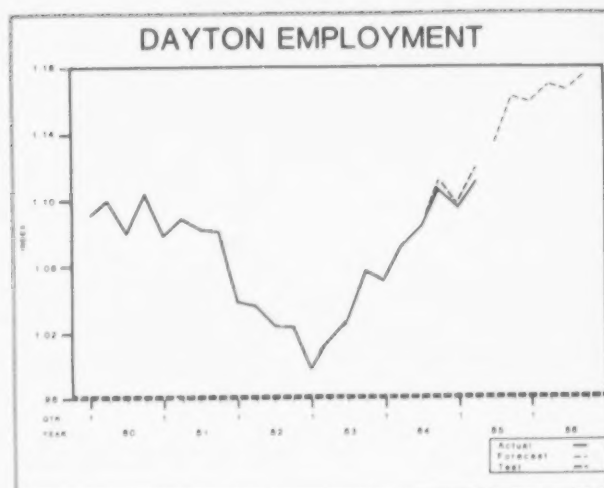




## Appendix 6 Dayton SMSA

### Historical Data and Forecasts

| Leading<br>Quarter   | Employment | Commercial<br>Loans | Payroll | Retail<br>Sales | Housing<br>Values |
|----------------------|------------|---------------------|---------|-----------------|-------------------|
| 80-1                 | 1 0909     | 1 0324              | 1 1056  | 0 9373          | 0 4106            |
| 80-2                 | 1 0989     | 1 0152              | 1 056   | 0 8104          | 0 4305            |
| 80-3                 | 1 08       | 0 9493              | 1 0433  | 0 7997          | 0 4967            |
| 80-4                 | 1 1037     | 1 0304              | 1 0757  | 0 8585          | 0 5166            |
| 81-1                 | 1 0782     | 0 9899              | 1 0687  | 0 8224          | 0 3841            |
| 81-2                 | 1 0885     | 0 9858              | 1 084   | 0 8358          | 0 2781            |
| 81-3                 | 1 0822     | 0 9909              | 1 0706  | 0 8945          | 0 2185            |
| 81-4                 | 1 0812     | 1 0132              | 1 0503  | 0 6636          | 0 0728            |
| 82-1                 | 1 0379     | 0 9635              | 1 0032  | 0 7704          | 0 245             |
| 82-2                 | 1 0361     | 0 0838              | 1 0197  | 0 8318          | 0 1722            |
| 82-3                 | 1 0245     | 0 9483              | 1 0197  | 0 8344          | 0 1854            |
| 82-4                 | 1 0238     | 0 9828              | 0 9599  | 0 7717          | 0 2781            |
| 83-1                 | 0 9983     | 0 9301              | 1 0095  | 0 7997          | 0 4768            |
| 83-2                 | 1 0165     | 0 9149              | 0 9962  | 0 8585          | 0 4172            |
| 83-3                 | 1 0281     | 0 846               | 1 0642  | 0 8558          | 0 3046            |
| 83-4                 | 1 0572     | 1 0405              | 1 0331  | 0 8985          | 0 3046            |
| 84-1                 | 1 0516     | 0 99                | 1 1363  | 0 9037          | 0 3441            |
| 84-2                 | 1 0723     | 1 0981              | 1 1008  | 0 9948          | 0 3871            |
| 84-3                 | 1 0829     | 1 1356              | 1 1193  | 0 9372          | 0 4715            |
| 84-4                 | 1 1057     | 1 1301              | 1 1473  | 0 911           | 0 3674            |
| 85-1                 | 1 0954     | 1 3125              | 1 1739  | 0 9058          | 0 3965            |
| 85-2                 | 1 1118     | 1 3343              | 1 173   | 0 9738          | 0 5527            |
| FORECAST STARTS HERE |            |                     |         |                 |                   |
| 85-3                 | 1 1331     | 1 5553              | 1 2146  | 0 9473          | 0 5543            |
| 85-4                 | 1 1617     | 1 6203              | 1 2012  | 0 8914          | 0 5291            |
| 86-1                 | 1 1585     | 1 8186              | 1 244   | 0 8761          | 0 5758            |
| 86-2                 | 1 1689     | 1 7253              | 1 192   | 0 8959          | 0 5979            |
| 86-3                 | 1 1658     | 1 8674              | 1 2016  | 0 8646          | 0 5576            |
| 86-4                 | 1 1767     | 1 8756              | 1 1734  | 0 8146          | 0 5103            |
| TEST FORECASTS       |            |                     |         |                 |                   |
| 84-3                 | 1 0813     | 1 0594              | 1 1357  | 0 9737          | 0 4304            |
| 84-4                 | 1 1117     | 1 1227              | 1 1139  | 0 9425          | 0 2986            |
| 85-1                 | 1 0978     | 1 1388              | 1 151   | 0 9522          | 0 3943            |
| 85-2                 | 1 1189     | 1 1987              | 1 1194  | 0 9877          | 0 4725            |
| NOMINAL VALUES       |            |                     |         |                 |                   |
| 76-1                 | 363,200    | 166,195             | 502,125 | 191,0           | 27,293            |

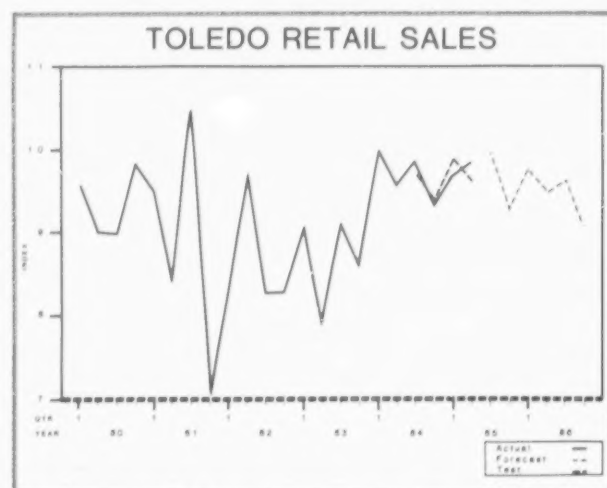
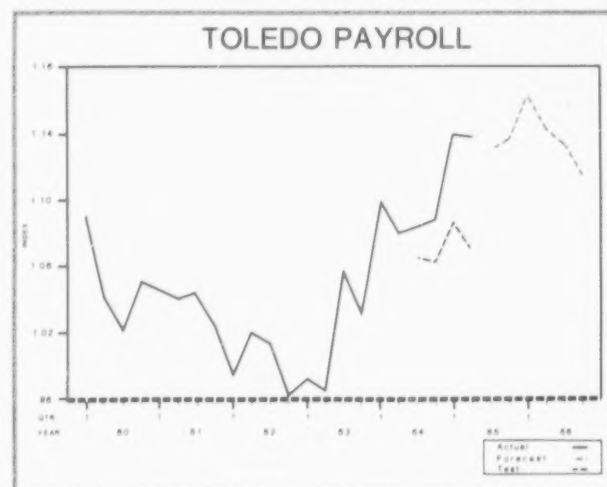
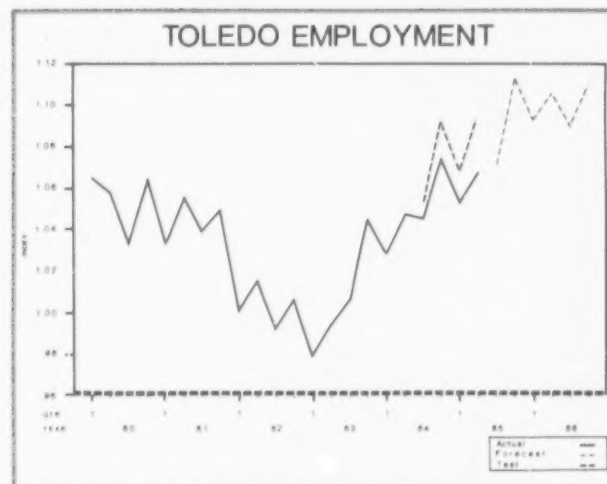




## Appendix 7 Toledo SMSA

### Historical Data and Forecasts

| Leading<br>Quarter   | Employment | Commercial<br>Loans | Payroll | Retail<br>Sales | Housing<br>Values |
|----------------------|------------|---------------------|---------|-----------------|-------------------|
| 80-1                 | 1 0645     | 0 9634              | 1 0898  | 0 958           | 0 6078            |
| 80-2                 | 1 0579     | 0 8944              | 1 0402  | 0 8995          | 0 5245            |
| 80-3                 | 1 0338     | 0 9362              | 1 022   | 0 8976          | 0 7059            |
| 80-4                 | 1 0658     | 0 9142              | 1 0507  | 0 9835          | 1 0098            |
| 81-1                 | 1 0326     | 0 8567              | 1 0457  | 0 9506          | 1                 |
| 81-2                 | 1 0557     | 0 8556              | 1 0408  | 0 8428          | 0 549             |
| 81-3                 | 1 039      | 0 8881              | 1 043   | 1 0475          | 0 3529            |
| 81-4                 | 1 0487     | 0 8964              | 1 0242  | 0 7038          | 0 2304            |
| 82-1                 | 1 0007     | 0 9174              | 0 9939  | 0 8172          | 0 1716            |
| 82-2                 | 1 0159     | 0 9372              | 1 0204  | 0 9708          | 0 3775            |
| 82-3                 | 0 9923     | 0 9383              | 1 0127  | 0 8282          | 0 3676            |
| 82-4                 | 1 0063     | 0 8264              | 0 9818  | 0 83            | 0 3039            |
| 83-1                 | 0 9786     | 0 9195              | 0 9923  | 0 9104          | 0 3971            |
| 83-2                 | 0 9941     | 0 9121              | 0 9846  | 0 7971          | 0 5245            |
| 83-3                 | 1 006      | 0 9299              | 1 0567  | 0 9104          | 0 5294            |
| 83-4                 | 1 0449     | 0 9916              | 1 0309  | 0 8629          | 0 4412            |
| 84-1                 | 1 029      | 1 01                | 1 1001  | 0 9971          | 0 3936            |
| 84-2                 | 1 0475     | 1 0128              | 1 0795  | 0 956           | 0 4269            |
| 84-3                 | 1 0452     | 1 061               | 1 0829  | 0 9853          | 0 3869            |
| 84-4                 | 1 0747     | 1 1776              | 1 0877  | 0 9326          | 0 409             |
| 85-1                 | 1 0533     | 1 2668              | 1 1393  | 0 9677          | 0 4068            |
| 85-2                 | 1 0682     | 1 4081              | 1 1374  | 0 9853          | 0 4615            |
| FORECAST STARTS HERE |            |                     |         |                 |                   |
| 85-3                 | 1 0703     | 1 4671              | 1 1276  | 0 9981          | 0 5863            |
| 85-4                 | 1 1133     | 1 5315              | 1 1341  | 0 928           | 0 6125            |
| 86-1                 | 1 0925     | 1 481               | 1 1513  | 0 9775          | 0 6296            |
| 86-2                 | 1 1057     | 1 5253              | 1 1251  | 0 95            | 0 6702            |
| 86-3                 | 1 0892     | 1 5003              | 1 1159  | 0 9637          | 0 6933            |
| 86-4                 | 1 11       | 1 4873              | 1 098   | 0 9071          | 0 6318            |
| TEST FORECASTS       |            |                     |         |                 |                   |
| 84-3                 | 1 0531     | 0 9886              | 1 0647  | 0 9709          | 0 4113            |
| 84-4                 | 1 0915     | 1 1226              | 1 0621  | 0 9391          | 0 5037            |
| 85-1                 | 1 0681     | 1 1907              | 1 0862  | 0 9892          | 0 5165            |
| 85-2                 | 1 0947     | 1 2169              | 1 0691  | 0 9615          | 0 591             |
| NOMINAL VALUES       |            |                     |         |                 |                   |
| 76-1                 | 243.500    | 176.315             | 413.220 | 170.5           | 24.172            |

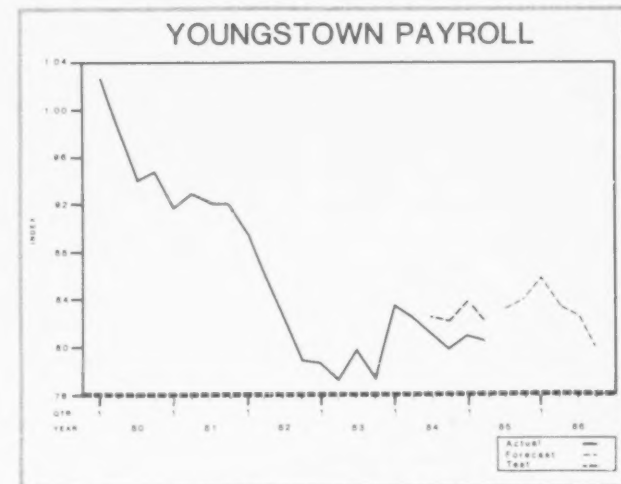




## Appendix 8 Youngstown SMSA

### Historical Data and Forecasts

| Leading<br>Quarter   | Employment | Commercial<br>Loans | Payroll | Retail<br>Sales | Housing<br>Values |
|----------------------|------------|---------------------|---------|-----------------|-------------------|
| 80-1                 | 1 0402     | 1 0109              | 1 0269  | 0 7797          | 0 5177            |
| 80-2                 | 1 0287     | 0 9819              | 0 9801  | 0 7227          | 0 5248            |
| 80-3                 | 1 0027     | 1 0043              | 0 9393  | 0 7334          | 0 8936            |
| 80-4                 | 1 0127     | 0 9196              | 0 947   | 0 7488          | 0 9858            |
| 81-1                 | 0 9837     | 0 9029              | 0 9174  | 0 7442          | 0 9433            |
| 81-2                 | 1 0146     | 0 9667              | 0 9287  | 0 6487          | 0 6879            |
| 81-3                 | 1 0079     | 0 9029              | 0 9221  | 0 9461          | 0 3972            |
| 81-4                 | 0 9894     | 0 9594              | 0 9198  | 0 5809          | 0 2908            |
| 82-1                 | 0 9253     | 0 9442              | 0 896   | 0 7134          | 0 234             |
| 82-2                 | 0 9281     | 0 9725              | 0 8583  | 0 6656          | 0 3759            |
| 82-3                 | 0 9038     | 0 9826              | 0 8263  | 0 6117          | 0 3546            |
| 82-4                 | 0 8743     | 1 0145              | 0 7889  | 0 6317          | 0 4397            |
| 83-1                 | 0 8579     | 0 9674              | 0 787   | 0 6733          | 0 6383            |
| 83-2                 | 0 8938     | 1 1225              | 0 7726  | 0 6194          | 0 539             |
| 83-3                 | 0 905      | 1 2159              | 0 7975  | 0 7304          | 0 5532            |
| 83-4                 | 0 9117     | 1 3145              | 0 7741  | 0 6564          | 0 6099            |
| 84-1                 | 0 8978     | 1 12                | 0 8363  | 0 7302          | 0 5013            |
| 84-2                 | 0 9231     | 1 3012              | 0 8254  | 0 7242          | 0 0624            |
| 84-3                 | 0 9194     | 1 2836              | 0 8127  | 0 7937          | 0 0593            |
| 84-4                 | 0 9258     | 1 4507              | 0 8002  | 0 7044          | 0 0471            |
| 85-1                 | 0 9075     | 1 6172              | 0 8107  | 0 7341          | 0 0557            |
| 85-2                 | 0 9246     | 1 6426              | 0 8063  | 0 7937          | 0 0614            |
| FORECAST STARTS HERE |            |                     |         |                 |                   |
| 85-3                 | 0 94       | 1 8054              | 0 8299  | 0 8272          | 0 2065            |
| 85-4                 | 0 9566     | 1 9175              | 0 8397  | 0 7483          | 0 303             |
| 86-1                 | 0 9362     | 2 0125              | 0 8573  | 0 8006          | 0 4186            |
| 86-2                 | 0 9439     | 2 0454              | 0 8341  | 0 776           | 0 4827            |
| 86-3                 | 0 9278     | 2 1316              | 0 824   | 0 81            | 0 4092            |
| 86-4                 | 0 9122     | 2 1267              | 0 7972  | 0 7341          | 0 398             |
| TEST FORECASTS       |            |                     |         |                 |                   |
| 84-3                 | 0 9321     | 1 2944              | 0 8256  | 0 7581          | 0 1043            |
| 84-4                 | 0 9389     | 1 4293              | 0 8227  | 0 7266          | 0 1129            |
| 85-1                 | 0 9113     | 1 49                | 0 8398  | 0 7719          | 0 2481            |
| 85-2                 | 0 9426     | 1 7916              | 0 8208  | 0 7523          | 0 2502            |
| NOMINAL VALUES       |            |                     |         |                 |                   |
| 76-1                 | 198,900    | 77,989              | 204,644 | 100.8           | 7,044             |





# Viewpoint: Interstate Tax Competition and Economic Development

By Harold A. Hovey\*

My purpose here is to deal with the clash between the desires of state officials for economic development and their quest for rational state and local tax policy. For the benefit of tax policy specialists, I will play the role of a development professional. Some tax policy specialists may not like where the argument leads, but the problem is that to beat it they should be able to refute it intellectually and beat it under political combat conditions. The last decade of state tax policy changes suggests this isn't easy.

## The Economic Development Imperative

These objectives are rarely questioned. I am aware of only two cases in the last decade in which state officials have said publicly that they wanted to avoid growth. One was a controversial governor of Oregon and the other involved many officials of Vermont whose rhetoric on land use implied opposition to growth. Neither of these exceptions exist today.

Economic growth is popular because it implies something for everyone. For the disadvantaged, it means higher incomes and access to jobs. For average state residents, it means job opportunities for their children and higher value for their property. For government officials, it implies more revenues without having to raise taxes.

Growth is an establishment theme as well. The real winners from growth are people who produce goods and services under circumstances where the costs of serving additional customers are well below the revenues to be gained from them. At the top of this list are the media which gain advertising revenue but have little or no change in production costs as

their audiences grow. Also on the list are department stores, professionals such as lawyers and doctors, firms that supply the construction industry and contractors and even union leaders. The other gainers from growth are those that own property as growth inevitably leads to property value increases.

Growth is not as much a panacea as many people imagine, but its drawbacks tend not to get mentioned much. The views of local officials notwithstanding, growth can increase government costs faster than revenues. Growth can drive up wage rates and reduce the available labor supply — both minuses for businesses already established in an area. Growth can bring congestion on the highways and increase pollution problems. Growth-driven increases in property values are bad news for existing renters and persons who aspire to purchase a home. But these factors are generally discussed as reasons for "planned growth," not as reasons to prevent it.

The evidence of the growth imperative is everywhere. In 1982, when unemployment was high, practically every candidate for statewide office was talking growth. Despite improvements in the economy since, I cannot think of a race for governor in which the candidates didn't try to outpromise each other on economic development issues. State budgets for economic development agencies have been growing rapidly and will likely continue to do so.

Perhaps the best evidence of the universality of the growth objective is the apparent necessity to package nearly every state policy in its wrappings. Education reform in the South was sold in the name of economic growth — a need to have workers competent in basic skills. Higher education is being sold on the basis of needing high quality institutions to attract new versions of Boston's Route 128 and North Carolina's Research Triangle. Infrastructure spending is also sold in the name of growth.

## The Strategy of Encouraging Growth

There is substantial debate in the academic literature over what causes a state or local area to grow, with issues like whether people cause jobs or jobs draw population.

But in the world of the practical people who staff

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local chambers of commerce and state development agencies, there is widespread understanding of the economics of the situation. The common sense of the small town development committee is also reflected in the literature of regional economics.

For a state or local community to increase the income of its citizens relative to those of other states, it must change its terms of trade with the outside world. The most obvious way to do this is manufacturing — local residents producing goods that fetch consumer dollars all over the country and perhaps the world. So states and communities went after manufacturing through “industrial development” programs or what detractors call “smokestack chasing.” While it has become fashionable to emphasize other aspects of development strategies, smokestack chasing is alive and well, as the fierce competition for General Motors Corporation’s Saturn plant showed.

But smokestack chasing could not be the salvation of all American communities at once because there simply aren’t enough smokestacks to chase. Employment in manufacturing in the United States today is about what it was ten years ago. This means gains in manufacturing employment in some places must be offset by losses elsewhere. In addition, it became increasingly obvious that some money spent on smokestack chasing was being wasted. For example, nearly half of the space in industrial parks nationwide is unused.

So those interested in development started looking harder at other ways to improve their terms of trade. State officials recognized federal spending as a major force and began devoting more attention to where it goes as evidenced by the proliferation of state offices in Washington. State officials recognized that increasing the sales of an existing in-state firm could be as valuable as a new firm and began programs of technical assistance, sharing university research and export promotion. They recognized that large service operations could have as much impact as manufacturing and states such as Delaware and South Dakota began to chase banks and credit card companies. Also bringing money into the state by tourism promotion, encouraging motion picture productions, and conventions were recognized. Some development agencies also recognized that reducing imports from the outside world by substituting domestic production could be as valuable for development as increasing exports. As a result, many states are pushing in-state products to in-state consumers.

New development programs appear every year and quickly spread to every state. Once begun, they are continued essentially without exception.

## Development Strategy and Tax Policy

For as long as any of us can remember, a classic argument against any state and local taxes has been that they discourage business. This is presumed by some to be the case regardless of the form of the taxes. In its purest form, this argument makes absolutely no sense because it presumes irrational behavior by business decisionmakers. I assert that many business leaders operate reasonably intelligently to maximize profit and that, over time, those who do tend to win out over competitors who don’t.

Such a decisionmaker would not let business location decisions be controlled by the level of state and local spending or level of taxes. Instead they would key on the tax and spending policies affecting the firm. Alaska has, by far the highest state and local taxes in the country, but they fall primarily on oil companies rather than other forms of business or individuals. It makes no sense to argue that a garment producer should be deterred from an Alaska location because of high taxes on oil companies, a Nevada location because of high gambling revenues, or a Wyoming location because of high severance taxes on coal.

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**“In the early smokestack-chasing days, industrial development programs were designed to reduce two prominent elements of manufacturing costs . . . . As time passed, the development tool kits extended to every conceivable way of reducing costs.”**

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The appropriate decision rule for anyone who has selected a good or service to produce is to *minimize production and distribution cost*. These costs have many components — the cost of transporting raw materials, labor costs, taxes, utility costs, plant operating costs, and distribution costs. A firm’s interest in state and local policy should logically, and does, extend to the web of all government policies affecting cost. Those include the characteristics and maintenance of roads, the pricing of municipal services such as water supply, the regulatory effects on utility rates, the costs of training ill-educated workers and the waste and spoilage they cause, the labor costs associated with recruitment to particular locations, regulatory delays, other paperwork imposed by government, and all forms of taxes.



This is not the place for a discussion of the vast literature on the determinants of business location to and simply concur in Larry Ledebur's conclusion (*In Industrial Incentives: Public Promotion of Private Enterprise*) that their costs are underrated and their effectiveness overrated.

But there is a major point overlooked frequently in the literature, which is the effect of taxes on existing firms. Analysis tends to focus on the movement of firms, of which there is very little, and the siting of new facilities like the Saturn plant. But as I write, furniture manufacturers from New York and North Carolina are competing for customers as are computer makers in Texas, California, and Massachusetts, and millions of firms in thousands of markets. New York taxes don't have to drive a firm out of the state to have an impact. That impact can be the shrinking and closure of a firm in one state and expansions and "new births" of competitors in another.

In the early smokestack-chasing days, industrial development programs were designed to reduce two prominent elements of manufacturing costs — taxes and the cost of capital—using the tools of property tax abatement and industrial revenue bonds. As the years have passed, the development tool kits extended to every conceivable way of reducing costs. States and communities discount land or give it away, make loans and even contributions to capital, provide buildings, offer services such as research and development, industrial engineering, market research, train workers, offer discounted utility rates and reduce taxes.

### **Tax Policy from an Economic Development Perspective**

Our friends in the development business are paid to increase the number of jobs in a state. Most of them are at least vaguely aware that this cannot result from activities, such as barbershops, that merely redistribute a fixed amount of money within the local economy. They are acutely aware of the importance of decreasing the costs of operation in their state. Therefore, it should not surprise anyone to find them advocating state policies moving in the direction of eliminating all state and local taxes paid on operations, such as manufacturing, that have choices of where they locate and expand. In this effort, they have natural allies in the business community itself and, increasingly, organized labor.

As every fiscal analyst knows, there is considerable pressure to move tax policy in this direction. Property taxes, which have a high incidence on business, are being systematically

reduced in their relative contribution to state-local revenues, with the slack being taken up by taxes and the individual income tax. States continue to move to take manufacturers' inventories and machinery and equipment out of the property tax base. Many states avoid levying sales taxes on business-to-business sales and sales tax concessions periodically appear as economic development concessions, as recently happened in the state of Washington. State officials, with exceptions, haven't been looking to raise the rate of corporate income taxes when they need additional revenue. Meanwhile, they generally have adopted the erosion of the base reflected in Accelerated Cost Recovery System (ACRS) and ending unitary treatment. State-initiated erosions of the corporate income tax base increase every year. Enterprise zone tax breaks and the credits for expanding employment are the most fashionable current examples.

In addition, economic development professionals will be sensitive to any aspect of tax policy for individuals that is viewed as hindering economic development. The prime candidates by this criterion are the top bracket individual income tax rate and inheritance and estate taxes. This year alone, there were many examples of reductions in both.

When the development professionals get around to more mundane matters they will also find some other taxes that affect the costs of footloose firms, such as utility and telephone excise taxes.

From a development perspective (*only*) it is not hard to design an ideal state and local tax system. That system would place heavy reliance on consumption taxes, particularly the sales tax and selective excises such as those on alcoholic beverages, tobacco, and insurance premiums. Moving to such reliance would force states now without a sales tax to adopt one. It is not surprising that, partly in the name of economic development, Oregon leaders campaigned for such a tax in the fall of 1985 and may well do so again. Such a system would place relatively low reliance on property taxes affecting business. This result could be reached by placing less reliance on property taxes generally, by tax abatements, by assessment policy, and by systematically excluding large categories of business from the property tax base.

The corporate income tax would be reduced in many ways. First the symbolically important marginal rate would be dropped, as Pennsylvania has done. Second, there would be credits primarily benefiting footloose industry with West Virginia providing the most recent example of just how far this can go. There also would be reductions in the top bracket personal income tax rate.

I think it is fair to say that our state tax systems



are evolving in the direction of the tax policies I have outlined. Is feared interstate tax competition the reason? The answer is clearly yes for all the changes except the reduced reliance on the property tax, which relates primarily to the lack of popularity of the tax and successful efforts to get states to foot more of the bill for schools.

Will the trend be reversed anytime soon? I consider this very unlikely in the absence of federal tax reform legislation. I am not sure that state officials will be willing to increase the tax burdens on footloose business even if there is federal reform, like that proposed by the President, that will increase business taxes to finance reductions for individuals.

### **Are the Results Bad State Policy?**

So far I have been discussing tax policy as though it were a simple matter for states to increase reliance on one tax to offset reductions in another. This is unrealistic in the real world, where reductions in personal top bracket rates, exemption of corporate tangible property, and corporate tax credits translate, in part, into lower state and local spending. Thus, when we talk about interstate tax competition, we are partly talking about interstate competition in keeping state and local spending low.

Is there such competition? You bet there is. It is most strongly felt at the borders. New York changes its bank taxes to keep New York banks from becoming New Jersey banks. Virginia cuts its liquor revenues in the northern part of the state, only, to compete with the District of Columbia. Washington tried to apply special lower rates of sales taxes in counties bordering Oregon. Arkansas tries to reduce the income tax on citizens of Texarkana, which sits on the border of income-taxless Texas. But it is also felt in other ways. In state after state, legislative leaders, development officials, and governors appoint blue-ribbon committees to recommend how to improve economic development. In state after state, these groups come back with tax comparisons and recommendations to reduce business and top bracket personal income taxes. While the studies may show taxes to be a minor factor, legislators tend to be more impressed by face-to-face statements by local business leaders.

Does the competition make a difference in the level of state and local spending? It's impossible to prove that an answer to this question is right or wrong, but I think it is having a major effect in the higher tax states. It shows in Wisconsin and Minnesota, where state leaders of both parties, citing business climate, are looking for ways to slow the growth of state and local spending. It shows in Michigan where Draconian cuts have been made in state government activities. It shows in decisions on

state tax structure and spending levels in New York and Pennsylvania. It made a difference in Massachusetts, which is now touting its reduced tax burdens, making it more difficult for a state like Rhode Island to maintain its spending patterns.

It isn't hard, from an economic development perspective, to see what expenditures have to give in such a competition. Investments that are key to corporate competitiveness — ranging from roads, water supply, sewage treatment, and arguably education — must be maintained in the name of development. This tends to put the pressure on safety net programs, such as AFDC (Aid to Families with Dependent Children), Medicaid, and special programs such as those for the homeless. It also puts pressure on public employee compensation. A reduction or elimination of the deductibility of state and local taxes from federal taxable income would exacerbate these effects, so it should be no surprise that leaders of New York and public employees are leading the struggle to save it.

It is my view that interstate competition in taxes already causes AFDC payments, AFDC eligibility, Medicaid eligibility and coverage, and various other safety net activities to be less well funded than they would be if decisions about them were made on a national basis. The competition also produces considerable downward pressure on workers' compensation leading to ridiculous results such as awarding someone 100 times as much if maimed by negligence of his doctor than if maimed by the negligence of his employer.

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**"I do not fear the effects of interstate competition in education . . . But the competitive strategy for the safety net is not to have one."**

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This situation is exacerbated by massive mismatches of needs and fiscal capacity among the states. In the ten years I have been consulting with state officials I have done considerable work in states that represent the extremes — Arkansas and Mississippi on the one hand and Connecticut and Alaska on the other. Connecticut and Alaska can clearly afford just about any state policy you can think of, even giving bonuses to citizens. For Mississippi and Arkansas to provide the national average of state and local services, their taxes would have to be 70 percent above the national average for state and local taxes. This isn't done, and won't be, as nearly everyone — firms and individuals — with



money would simply shift to low-tax Louisiana, Texas, and Tennessee.

It has long been the position of most state officials that these problems would best be handled by a federal commitment to more of the costs of safety net programs. I do not fear the effects of interstate competition in education, where state officials seek lower taxes and better education. Some may opt to tax less and teach less, but they may not emerge the winners as education does have something to do with economic development. But the competitive strategy for the safety net is not to have one.

While concerned about the impacts of interstate tax competition on spending levels and priorities affecting the safety net, I am less concerned about the interstate tax competition as it affects tax policy.

Because the reasons why I am not concerned make me sound more extreme on the subject than most corporate leaders, I must first try to convince you that I am not a tool of business. I am an economist and lawyer by training. In my 26 years of working life, I have worked for state and federal governments and not for-profit organizations totally, with the exception of a couple of years with an association of utilities whose officials perform more like government executives than my image of the corporate world. But like millions of self-employed professionals, I do have my own little corporation. That we have them is the first reason to doubt our system of corporate taxation. As a state official, I had a lot to do with the evolution of Ohio from a state with no corporate income tax in 1970 to the third highest corporate rate in the country in 1984.

Professional economists have considerable doubt about taxing the income of corporations at all. I picked three public finance textbooks at random. One (Richard Wagner, *Public Finance: Revenue and Expenditures in a Democratic Society*) hemmed and hawed so much that I couldn't tell what the author thought. The second (Richard and Peggy Musgrave, *Public Finance in Theory and Practice*, page 270) comments:

The role of the corporation tax in a good tax system is by no means obvious. If the appropriate tax base is viewed in terms of consumption, there is clearly no case for a corporation tax. Corporate source income should then become taxable only if and when it is distributed and spent by the recipient. But the case for a corporation tax may be questioned even in the context of an income-based approach. Here taxation at the corporate level may be viewed as a mere device for integrating corporate source income into the individual income tax, rather than as an additional, "absolute" tax on corporate source income.

The third book (Bernard Herber, *Modern Public Finance*) begins its discussion with the comment: "On theoretical grounds it is difficult to justify the existence of a corporation income tax separate from the personal income tax."

While much ink gets spilled on the subject, a pretty convincing case can be made that the burden of the corporate income tax is shifted to consumers, not stockholders. If so, the tax is simply a hidden sales tax. It is also true that the tax hurts the competitiveness of our industries because we have agreed to international rules that say the United States cannot rebate the tax on production for export while other countries rely on taxes they can and do rebate to promote exports.

But states cannot undertake the reform of personal income taxes that would be required to end the corporate income tax and make the affluent bear at least the share of the tax burden, as they do today. National leadership would be required for that. Furthermore, not many state officials are likely to advocate openly the reduction of taxes on business. But they are willing to provide tax breaks to corporations in the name of promoting development through enterprise zone exemptions, investment credits, employment expansion credits, and research and development credits. All these reduce the effective rate at which states tax corporations, which I view as an acceptable result, and garbage up state tax systems, which I view as an undesirable but probably inevitable result.

Reflecting a feeling that such taxes are also shifted to consumers, I also do not bemoan the erosion of the corporate property tax base and a reduced reliance on property taxes generally, nor the tax reductions and exemptions that states are adopting for productive equipment such as industrial and farm machinery. If interstate tax competition furthers this result, the competition is not to be bemoaned, so long as business taxes and user charges are kept high enough to cover the few services that corporations, as such, get from government like transportation and police and fire protection.

In summary, interstate tax competition has probably caused tax burdens on the corporate entity to be lower than they would without such competition. But I don't see any serious problem with this result other than the fact that hiding it from the public causes some deadweight paperwork burdens.

But I do view with alarm what interstate competition appears to be doing to our systems for taxing individuals.

Of most concern are estate and inheritance taxes. There are clear value judgements involved here. My judgement is that allowing the children of



the affluent to have the financial head start they get from inheritances of the magnitudes now allowed to pass free of taxation is unfair in the extreme. To combine such a policy with allowing people to accept massive appreciation of assets like common stock and pass them along with a stepped-up basis ought to convince every low-income citizen that we have rigged "the system" against them, which we have.

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**"A significant erosion of deductibility of state and local taxes from income subject to federal tax will intensify the interstate competitive pressures for obvious reasons."**

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But what can officials of an individual state do about estate and inheritance taxes? Essentially nothing. There is enough mobility among the affluent elderly so that state officials have little choice but to keep their taxation of estates mild.

The other concern is the impact of interstate competition on top bracket individual income rates. Even when we have federal deductibility, I believe, but cannot prove, that states with high top bracket income tax rates are paying a price in economic development. I don't know how high the top rate has to be to be troublesome, but my guess is 7 percent, including both state and any local taxes. I count 13 states under considerable pressure by this test. Leading the list are states such as West Virginia, New York, California, Minnesota, Maine, Hawaii, Wisconsin, Vermont, Delaware, and Rhode Island. There hasn't been recent action in any one of these states to cut top bracket rates, but it has happened in a significant number of them.

A significant erosion of the deductibility of state and local taxes from income subject to federal tax will intensify the interstate competitive pressures for obvious reasons. In addition, I believe it will trigger modifications of tax systems in many states to alter the effective burdens of state and local taxes to restore roughly the burden distributions before deductibility was constrained or ended. This means lower top bracket rates.

These results should not be greatly surprising. In our mobile society, it is simply not possible for a single state to pursue an income redistribution policy markedly different from those of other states.

As a result, the really big issues regarding the

fairness of government taxing and spending in the United States will have to remain federal ones.

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Richard G. Sheridan is an Urban Scholar in the College of Urban Affairs and a faculty member in the Department of Urban Studies at Cleveland State University. From 1973 until his appointment at CSU in 1982, he directed the Ohio Legislative Budget Office.

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